Chemical Week

June 5, 1954

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Oklahoma has itself sized up to bolster its bid for chemical plant sites . . . . . p. 16

Ford's Vallier: he's resin-impregnating mahogany to thwart shrinkage problems . . . . p. 54

Now solid propellants are just rocket fuels; but they loom as potential, compact process power generators . . . . p. 64

Diamond's McIlrath: corrosion is his adversary; combating it, his career . . . . . p. 76

New look in ketones: emphasis on upgrading . . . . . p. 89

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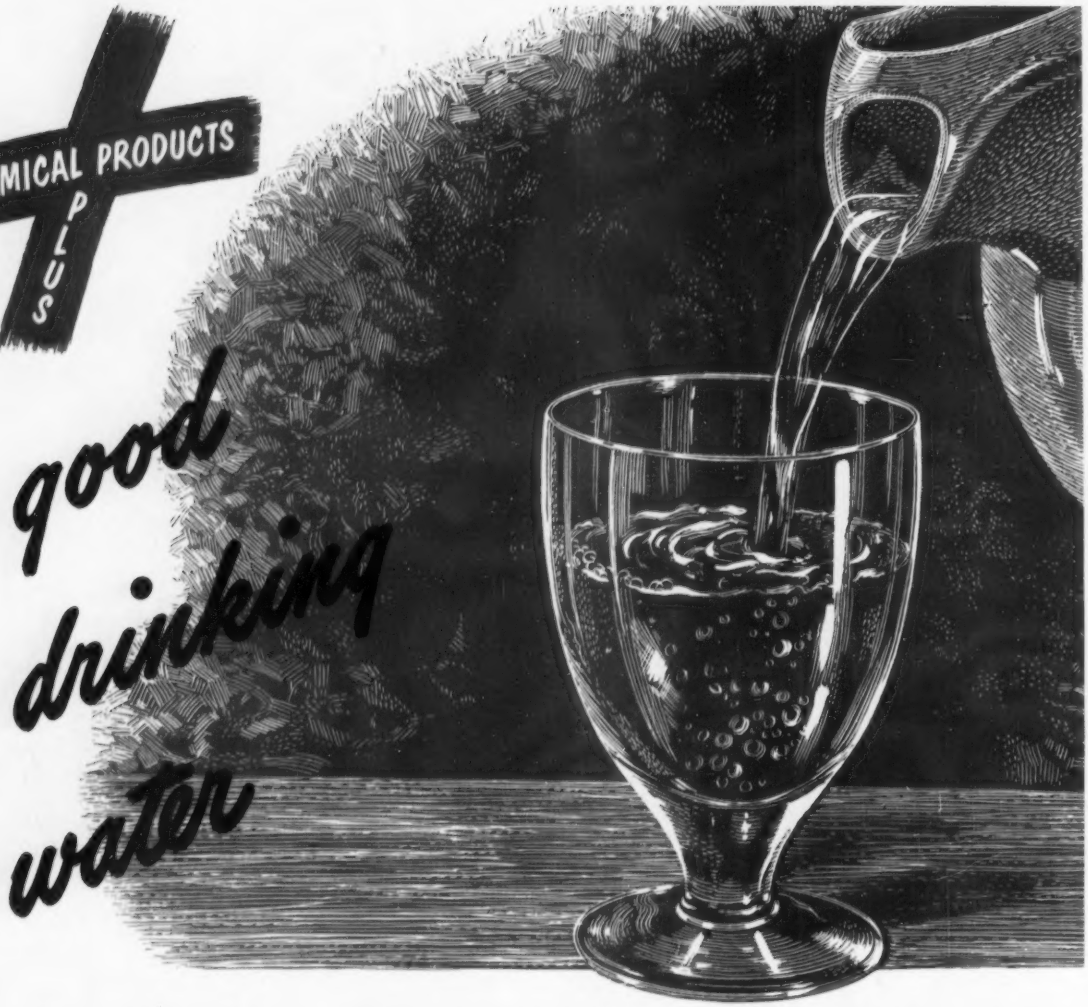

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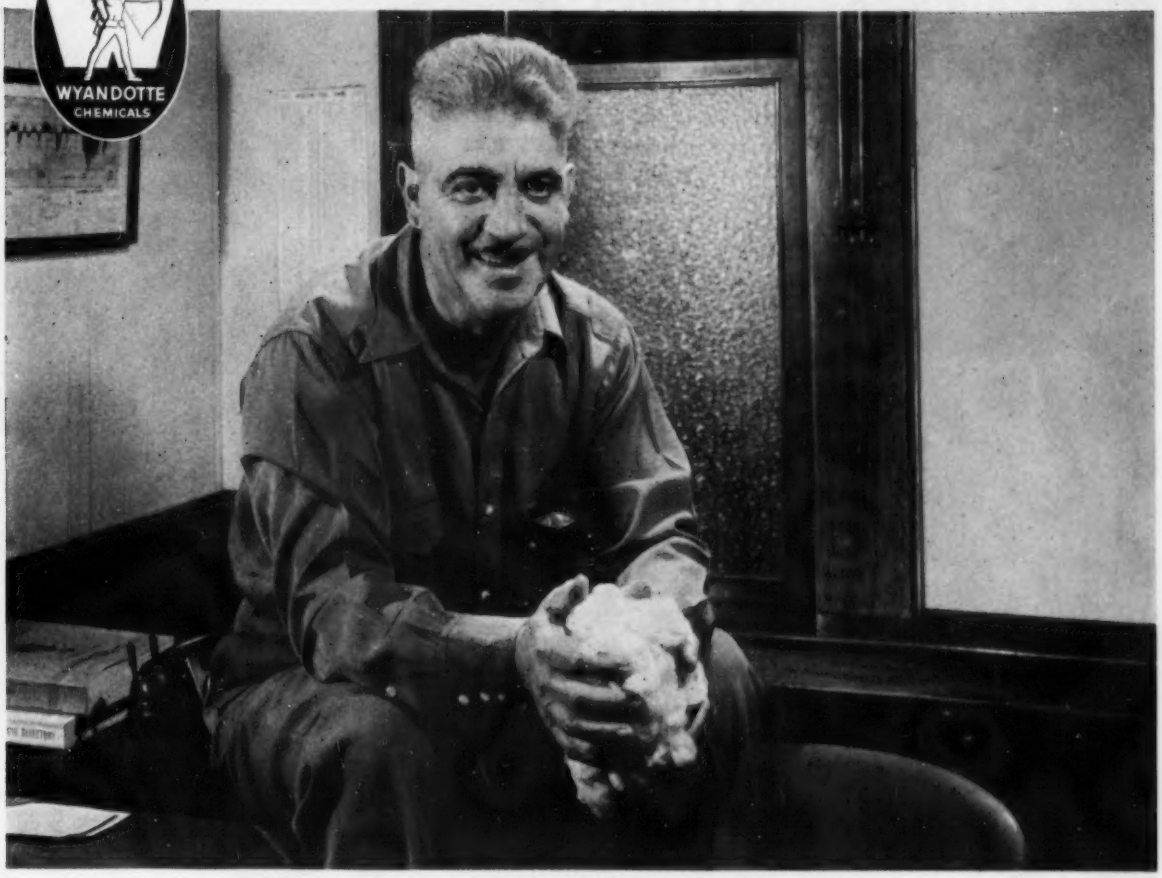

President William B. Kapplain, Rohmer Wool Scouring Co., Newton, Mass., examines some newly scoured wool.

"I watch every process in our plant, every day ... that's one way I control quality"

—William B. Kapplain, Rohmer Wool Scouring Co.

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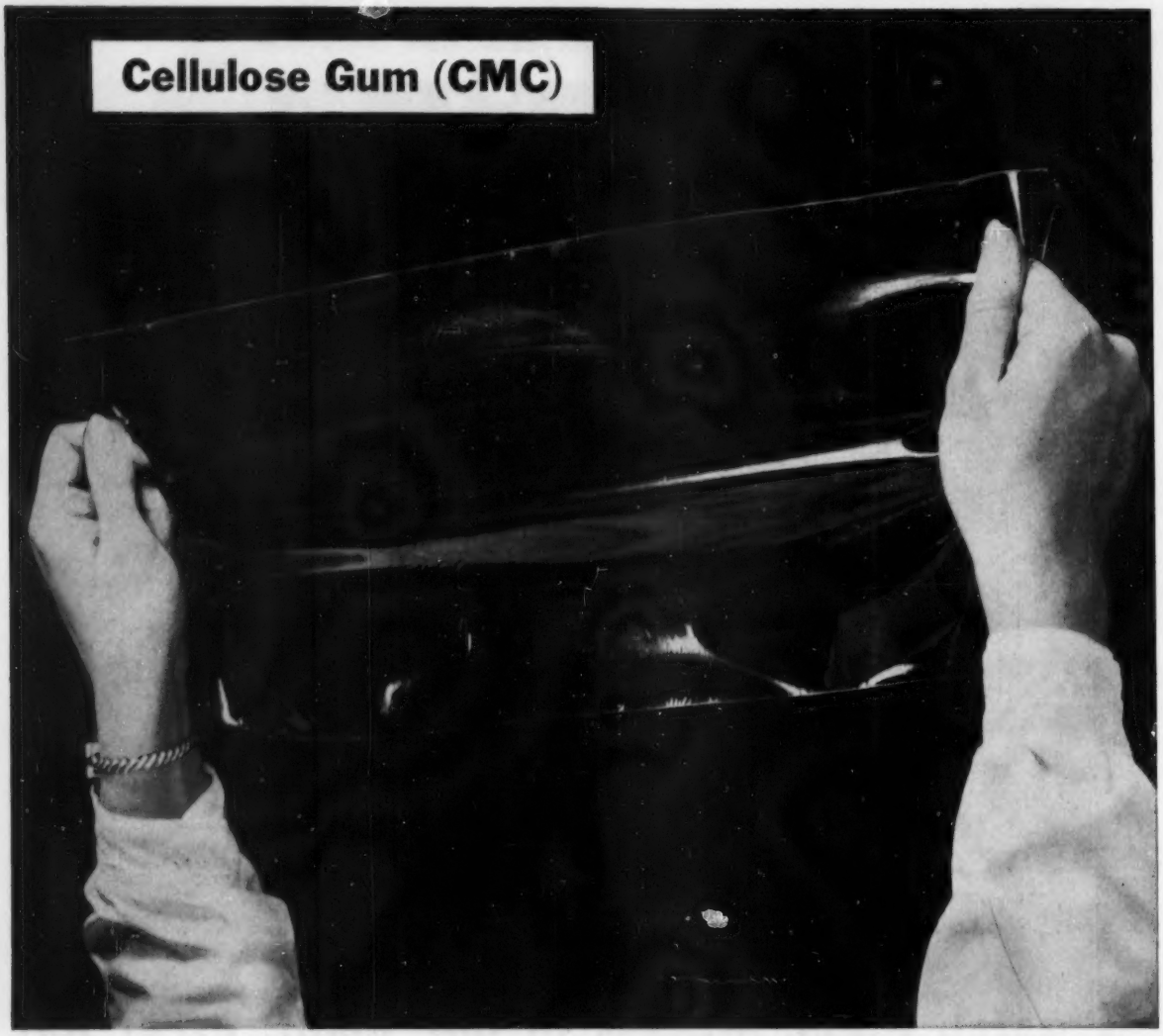

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Chemical Week

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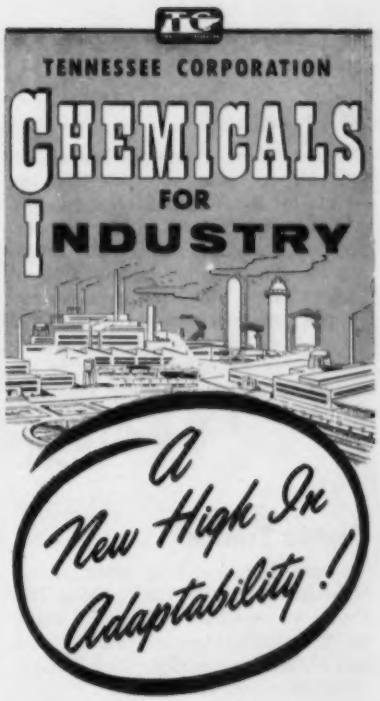

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OPINION . . . . . .

Why Bother?

TO THE EDITOR: Seldom has an article left me more apathetic than the "Tints for the Washtub" thing in the May 15 issue. It seems like I spend increasing portions of each day listening to manufacturers harangue about red, white, blue, chartreuse and purple detergents, and now the flood seems to be overflowing into the feature stories. Frankly, after reading the article, I still can't figure out why they bother.

HARRY S. CALVIN
Omaha

Textile Trends

TO THE EDITOR: Your news article "Chemicals by the Yard" (*May 15*) shows an excellent and careful study of the textile chemical market and you should be complimented. I have, however, a few comments . . .

1. It is the feeling that the first quarter of 1954 is a poor indicator of activity in the textile chemical industry field for this year; this is due to unsettled conditions on inventories, income tax and considerably to the state of mind of people.

2. Cotton fabrics for military use have been drastically cut back and there is a concentrated effort to take up the slack in the so-called X-tra garment field. This can be corroborated by noting those heavy cotton goods manufacturers who are retooling to go into this field; as for example the Simmons Co. (Simtex, Inc.). In general they will use more textile chemicals of the resinous and water-repellent nature than was used on military fabrics.

3. The carpet industry—which is currently a little slack—is turning more and more to the use of cotton and synthetics and away from wool because production costs of cotton and synthetics are much less than those involved in making a woolen carpet. They will require more textile chemicals than previously used on woolen carpets, but it will cause serious dislocations in many carpet concerns . . .

4. In the summer suiting field there will undoubtedly be an increase in the amount of wool used in blends with the newer synthetic fibers . . . This will be to the detriment of the viscose suitings, which have been resin treated and have used considerable quantities of resins . . .

5. The various flammability laws have created a terrific clamor for chemicals . . . This has created tremendous problems . . . in that most of the products available are either not compatible with the wrinkle-, spot- and stain-resistant finishes, or they impart a very poor hand to the fabric—making it almost unsalable . . .

There is business available but it will take good selling as well as good research on new products to be able to obtain it during 1954 . . .

IRA S. HURD
Textile Sales Manager
Warwick Chemical Co. Div.
Sun Chemical Corp.
Carolina, R.I.

Whopping Isophthalic

TO THE EDITOR: . . . We appreciate your mention (*May 15, p. 18*) of our plans to produce isophthalic at Richmond. All your facts are fine with a single exception.

Instead of the piddling 15-million-lb. capacity you mention, we plan a whopping 50 million lbs. . . . Incidentally, our product will be 98%-plus isophthalic (balance terephthalic) . . . a considerable step up from our previously contemplated 85/15 composition . . .

R. I. STIRTON
Manager
Product Development Dept.
Oronite Chemical Co.
San Francisco

We appreciate the additional, hitherto unrevealed, information on product composition. We regret the typographical error in a teletype, which misrepresented plant capacity. We should have caught it, because we knew better; the 50-million capacity was accurately predicted in CW, Sept. 19, '53.—ED.

Not Preferential

TO THE EDITOR: In your news article on the degreasing solvent Vythene, sold by Tect, Inc. (*April 17*) there are a couple of phrases that disturb us . . . The unfortunate implication, from our point of view, is that Dow is giving some sort of preferential treatment to Tect . . .

You are correct in saying that Dow is checking the product Vythene. We, of course, want to know how it stacks up . . .

Dow is not at present carrying any stocks of Vythene at its various stock points. We have agreed, however, to produce it for Tect and have also agreed to carry stocks of their material, which we produce for them at our various methylchloroform stock points.

We naturally would make the same type of offer to others under similar conditions. But in all cases such arrangements would be on a limited time basis . . .

We should like to make this statement to clear up some of the misunderstanding we have experienced with some of our other customers . . .

L. P. BUTENSCHOEN
Manager, Solvent Sales
Dow Chemical Co.
Midland, Mich.

DATES AHEAD

Society of the Plastics Industry, exposition, technical conference, Public Auditorium, Cleveland and Statler hotels, Cleveland, June 7-10.

American Plant Food Council, annual meeting, Homestead, Hot Springs, Va., June 10-13.

American Society for Testing Materials, annual meeting, Sherman and Morrison hotels, Chicago, June 13-18.

National Fertilizer Assn., annual meeting Greenbrier hotel, White Sulphur Springs, W. Va., June 14-16.

Drug, Chemical and Allied Trades section, N.Y. Board of Trade, spring luncheon meeting, Commodore hotel, New York, June 17.

American Institute of Chemical Engineers, special meeting on nuclear energy, Univ. of Michigan, Ann Arbor, June 20-25.

Chemical Institute of Canada, annual conference and exhibition, Royal York hotel, Toronto, June 21-23.

American Drug Manufacturers Assn., annual meeting, Lake Placid Club, Lake Placid, N.Y., June 28-30.

Plant Maintenance Show, Pan Pacific Auditorium, Los Angeles, July 13-15.

American Pharmaceutical Assn., annual meeting, Statler hotel, Boston, Aug. 22-27.

World Congress on Surface Active Agents, Sorbonne, Paris, France, Aug. 30-Sept. 3.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.

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the cosmetic industry

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Repeat cosmetic sales depend largely on formulation.

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New Dutch Boy Ben-A-Gel does equally beneficial things for emulsion paints, insecticides and fungicides, cleaners and polishes, adhesives, textile finishes, crayons and chalks. Even ceramics.

Well worth looking into! Maybe you'd like to explore the effects of new Dutch Boy Ben-A-Gel . . . or one of the Dutch Boy "Bentones" (organic gelling agents) for paints, lacquers, greases, adhesives and other organic systems.

Or perhaps you would like to know more about National Lead's newest developments in vinyl stabilizers . . . or Dutch Boy's new double-duty plasticizers that give a unique combination of low volatility and low temperature flexibility . . . or some special chemical like lead hyposulphite or chromic phosphate. Just fill out the coupon.

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NEWSLETTER

The chemical industry expects something more than economical electric power from an atomic reactor.

Philip Powers, director of Monsanto's atomic project, sketched his own requirements for such a reactor at a meeting of the Atomic Industrial Forum in Washington last week. Besides producing useful electricity, Powers argued that nuclear reactors should also turn out fissionable products for use in weapons and industry. Further, he said that radiation from the reactor might be utilized in manufacturing radioactive substances for use in the chemical industry.

Powers' was almost a lone voice at the meeting, which stressed the generation of electricity from nuclear sources. There was talk of self-sustaining breeder reactors that would produce power and additional fuel at the same time, but little attention was given otherwise to the by-products of nuclear power production.

General Electric surprised most of the 500 participants at the meeting by abandoning its pessimistic view toward the future of a nuclear power industry. Last year, GE estimated that competitive power from nuclear sources was 15 years away. At the meeting last week, GE's Francis McCune predicted competitive power from the atom in 5-10 years (see p. 32).

Most of the reactor types discussed would lean heavily on chemical reprocessing of the fuel elements. Cost of reprocessing, experts made it clear, could well determine whether certain reactor types will compete with conventional steam plants.

•

Having rejected the high bid of $151,000 for the Ashtabula, O., carbide plant (CW Newsletter, May 29), General Services Administration will likely advertise for new bids within the next few weeks.

Industrialists in the area have now lost hope that the facilities will again be used for manufacturing. Several chemical firms examined the property, turned it down flatly because the furnaces are too small (6,000 tons vs the 20,000-ton units now used), there's no adjacent land for expansion, and conversion costs would be too high.

GSA will probably change the bidding basis. Previously it required purchase of the whole plant as a unit; now it's expected to offer the building and equipment separately.

•

Quick tax write-off to encourage installation by industry of equipment to reduce air pollution has been knocked out of the housing bill. But it's still a lively possibility: it may be written into the tax revision bill.

Also, more liberal rules about undistributed profits seem assured. The Senate committee has agreed with the House on the biggest change, which puts the burden of proof on the Internal Revenue Service to show that accumulations are unreasonable. The industry has been asking for this on the grounds that existing rules keep some firms from building up funds to be invested later in new plant and equipment.

More liberal depreciation policy in general is now a certainty. The Senate Finance Committee has the big overhaul of the tax laws ready for debate. A prime provision: to permit a company to write off half the

cost of new equipment in five years. Only some minor tinkering on how to stretch out the last half of equipment cost is left for the Finance Committee to handle.

•

Chemical firms that deal with the Oil Workers' International Union (CIO) were following with more than usual interest the union's convention in Cleveland this week.

On the agenda: ratification of a proposal to unite with 30 smaller unions, form a single union with a quarter-million members (CW, March 6, p. 25); a request by the union's chief, Jack Knight, to launch a nationwide drive for "substantial general wage increases."

•

Chances look even better this week for continued operation of the government's tin smelter at Texas City (CW, May 29, p. 13).

The Senate Armed Services Committee has unanimously approved a resolution to keep it going another year, and Rep. Jesse Wolcott (R., Mich.), who introduced the Administration's bill to close the plant at the end of this month, is prepared to abandon his fight for it.

•

Lots of interest in the government's synthetic rubber plants. Over 60 bids were submitted before the deadline last week, and now—and until Dec. 27—the Rubber Producing Facilities Disposal Commission is negotiating with the bidders, will report to Congress before next Jan. 27 its recommendations as to the most desirable bids.

•

After the first of next month, interstate shipment of highly flammable fabrics will be banned. Hence manufacturers will be required to make tests in accordance with Federal Trade Commission rulings—on fabrics now in stock as well as on new materials.

•

Fluoridation was hotly debated last week as hearings began on a bill, H.R. 2341, introduced by Rep. Roy Wier (F.L.-D., Minn.), that would prohibit fluoridation. Wier introduced the bill at the request of some constituents, appeared lukewarm toward it himself.

Rep. Gerald Ford (R., Mich.) testified in opposition to the bill, but the first day's other nine witnesses were for it. One argument advanced: "I know that fluoridation is a Communist scheme—frankly, the master plan—but I can't prove it, for those who have informed me can't testify. They would be liquidated if they did."

•

This was a week for new plants, new products, new plans:

• National Tube Division of U. S. Steel will start making plastic pipe at its Gary, Ind., plant in September.

• Archer-Daniels-Midland has bought National Distillers' resin division, with plants at Newark, N. J., and Pensacola, Fla.

• Shell Chemical is now making p-tert-butylbenzoic acid at Martinez, Calif., by one-step air oxidation of p-tert-butyltoluene.

• Lone Star Sulphur Corp. this week started Frasch-mining sulfur in Fort Bend County, near Houston. Output: 400-500 tons/day.

•

Something new in cigarettes: It won't be officially admitted for some time—probably next fall, but Philip Morris has switched from its long-used diethylene glycol humectant to triethylene glycol.

. . . The Editors

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Alkyl sodium compounds, such as amylsodium and phenylsodium, offer you many versatile applications.

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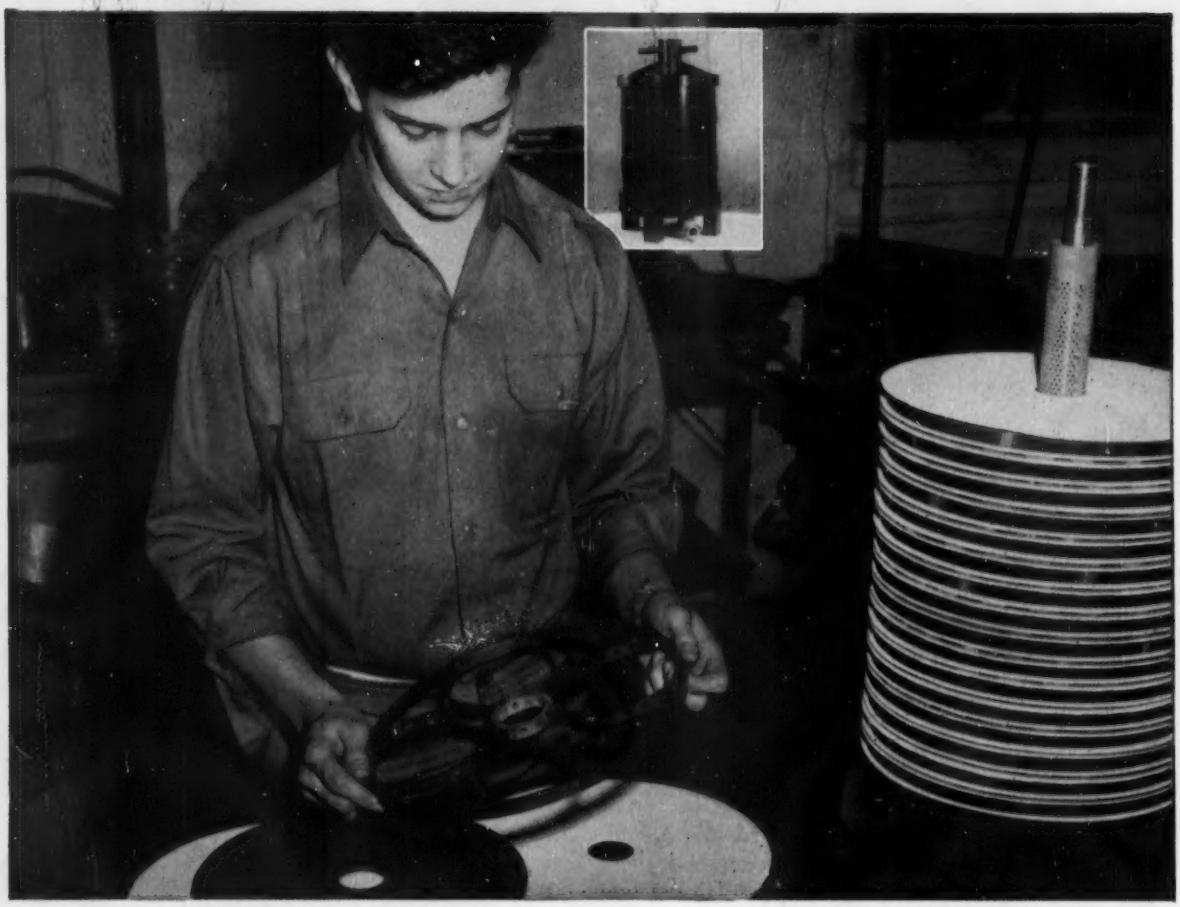

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BUSINESS & INDUSTRY . . .

Compromise in Order

President Eisenhower, facing almost certain defeat in the House on any major revision in foreign trade policy this year, has decided to settle for a one-year extension of the Trade Agreements Act. Result: a cease-fire in the tariff battle waging on Capitol Hill, with members of organized high tariff lobbies and the partisans of free trade withdrawing "until Congress reconvenes next session."

To Washington observers, the cease-fire is virtual confirmation of the previously suspected hunch that Rep. Daniel Reed (R., N. Y.), protectionist chairman of the House Ways & Means Committee, has made a deal with the White House. He has apparently agreed to report out the social security bill and support a one-year extension of the trade bill, if President Eisenhower will not push for a three-year tariff law now.

That, however, doesn't rule out the possibility that some amendments to restrict specific imports won't be written into the one-year extension bill before it's passed. And individual companies undoubtedly will continue to lobby for specific protection—counting on an election year to lend weight to their pleas.

Rallying Round: Industry spokesmen, however, are rallying behind the Eisenhower recommendation for extension. "Business leaders," says Warren Lee Pierson, chairman of the U.S. Council of the International Chamber of Commerce, "are seriously concerned over the delay the battle has caused." Continued delay, he continues, may make it impossible to "establish an enduring pattern of world trade . . . and may weaken the alliances on which our security depends."

Echoes Rep. Robert Kean (R., N. J.): "Extension of the Reciprocal Trade Agreement will be only academic anyway . . . should be able to be passed without further dissention."

But any across the board, multilateral changes in tariff laws looks hopeless this session. Regardless of the weight any crusading company manages to toss into the fray, import barriers are not liable to go up or down—either by tightening up the escape clause or by granting the Tariff Commission more power.

DAN REED: Has he made a deal with the White House?

Democratic strategy on the tariff question is clear-cut now. Rather than take a stand this session (and bail out the President's program), they'll wait until after the November elections, and then press for lower tariffs in earnest if they win control of Congress.

Two-Price Politics

Publicly, chemical industry representatives are staying silent and neutral on the farm price-support struggle that's boiling in Washington this week; but privately, some of these people admit it's hard for them to keep from speaking out on this issue because of its weighty implications for chemical process companies.

A basic switch in the nation's farm policy may be shaping up because of Congress' failure to act on the Eisenhower Administration's price-support program—and chemical firms can be affected in at least four ways, in addition to whatever impact the new policy may have on general prosperity. Specific effects on chemical concerns:

- Consumption of fertilizers, insecticides and other farm chemicals usually goes up when farm prices are high, dwindles when commodity prices slip.
- Price levels and availability of farm-grown chemical raw materials—such as starches and vegetable and animal fats and oils—depend on farm market prices.
- When farm prices drop, natural products—such as wool and butter—are likely to take a larger proportion of sales from man-made products like oleomargarine and synthetic fibers.
- Maintaining domestic commodity prices above world price levels can give an extra competitive advantage to foreign chemical producers who buy their raw materials more cheaply than U.S. manufacturers.

Brannan Plan Reappears: Basically, the controversy is between the conservative group fighting for strict governmental economy, whose most zealous partisans would like to end all price supports; and the liberals and farm-state congressmen—particularly the ones who are up for re-election this fall. President Eisenhower favors a middle-of-the-road course, with flexible price supports that would help farmers in hard times but would not burden taxpayers when farmers don't need help.

As the November election date approaches, it's easy to see that there's growing sentiment on Capitol Hill for adoption of the old "Brannan plan" for individual products. The Administration's recommendation for a bill of this kind on wool has already been adopted by the Senate. If it becomes law, wool would be sold at supply-and-demand market prices, and wool growers would receive direct payments from the U.S. Treasury to make up the difference between market price and the parity price as defined by law—i.e., a "fair price" relative to what the farmer has to pay for what he needs to buy. A company making synthetic fibers could complain that part of the money it sends to Washington as income tax was being used to encourage sheep ranchers to raise more cheap wool, which would tend to cut into synthetics' sales volume.

Another consequence of price supports: with government-owned stocks of farm surplus commodities swelling, the U.S. is beginning to try to sell some of these materials abroad at the world price level. Thus a foreign paint maker can buy U.S. linseed oil for 7¢ or 7½¢/lb., but that same surplus oil can't be sold to a domestic user for less than 14½¢/lb.

Here's How Some of the More Bullish Chemical Stocks Stand Now

Company	1954 Low	Closing Price May 25
Allied	72½	88½
American Ag.	57	71¾
American Potash	34½	42¼
Atlas Powder	34¾	40½
Lion Oil	30⅛	41
Mathieson	38	46¼
Monsanto	79⅝	92¾
Reynolds Metals	51⅝	70
Rohm & Haas	148	200
Spencer	55¼	68⅞
Victor	26⅞	33¼

Limit to Coincidence?

Coincidental with the recent rash of mergers and acquisitions in the chemical industry has been an equally contagious activity of certain chemical stocks. Industry spokesmen and Wall Street observers agree there's no clear-cut connection, but aren't sure that some of the drive behind a number of sudden stock jumps hasn't been caused (in part) by a consensus that the chemical industry today is looking at acquisition "as the quickest and most economical road to expansion."

Most prominent example in recent weeks of a rapid stock rise has been that of Monsanto common stock (which rose from $86 to $97 in six trading days). Officials claim they know no single reason for the spurt, presume that some large investment trust has decided to add Monsanto to its portfolio, or "that several investment analysts *coincidentally* decided Monsanto was a good buy . . . and the news leaked out." Wall Streeters don't buy that reasoning, however. Points out one broker: "If a large investment house—in seeking stock, discovered it was driving the price up from $86 to $97, it would hardly continue buying at $97. It would wait until it dropped again."

Equally spectacular has been the rise of Rohm & Haas—whose stock jumped 28 points in a single day. "Rumors on the Street that Rohm & Haas management is considering a four-for-one stock split may have accounted for it in part," maintains some security analysts. But another guess is that "the big push behind the scene is being executed by several large brokerage houses—who've been excited about Rohm & Haas for months."

Mallinkrodt's stock (which at first offering sold at $26) has taken another hop since its initial leap to $35, but observers credit the rise to "the magic word uranium," more than to any probability of merger or acquisition.

Reason for Allied's steady gain (*see chart*) is likewise attributed more to the result of an aggressive public relations campaign "which is now taking hold" than to concrete word concerning any acquisition. But it's common knowledge that present Allied policy tends toward expansion through purchase. And many Wall Streeters wouldn't be too surprised to see a flurry of Allied "purchases" in the very near future.

In speaking about American Agricultural Chemical, security analysts are more cautious. "Much of the present confidence in regard to Am. Ag. stock," opines one broker, "is the natural result of a generally rosier picture in the fertilizer industry in general." Fiscal year earnings (ending June 1) look good this year; stockholders "should get a good return on their investment."

Popularity of Atlas stock is probably connected in part with its recent decision to "go overseas" (*CW, May 15, p. 16*); the rumored Olin-Mathieson merger (*CW, May 22, p. 20*) undoubtedly accounts in large measure for the increased desirability of Mathieson stock.

"Anticipated price increases in ammonia," concludes an investment broker, "is the greatest single reason behind Spencer's stock activity."

"Victor is in much the same position. Earnings look good this year; the company had a number of nonrecurring expenses last year it won't have to cope with in 1954."

But no one on Wall Street is overlooking or discounting the possibility of more chemical mergers. And that's feeding optimism—whether they're "predictions" or mere idle thinking.

Open Firing Now

The expected lawsuit—served by Shell Oil Co. on Leon C. Baker, president of American TCP Corp. (*CW, May 15, p. 15*)—has become an actuality. Last week, in New York's State Supreme Court, Shell set in motion legal action against Baker's company, which last month started selling "TCP Concentrate" in cans.

Next move: American TCP will retaliate with a separate suit in Federal District Court, charging violation of antitrust laws, and seeking treble damages of at least $3 million.

Under New York law, Shell is not required to file papers with the court until the suit is ready to be heard, but Baker, who has reviewed the complaint, says that Shell's charges include:

- Unfair competition through use of Shell's characteristic colors and letters that slant to the right.
- Imitation of Shell advertising.
- Representation by American TCP of association with Shell.
- Trademark violation.

Shell Counsel Kenney refuses to comment on the charges, but Baker reads his own significance into the fact that Shell is not seeking a temporary injunction. Says he: "If Shell thought it had a good case, it would seem an obvious move. The situation remains that American TCP is in no way restricted from carrying on business until the case is tried, which may not be for years judging from the present calendar congestion."

FTC'S LIPSCOMB: From mysterious pipe fittings, a setback for science?

Cynicism and Sales

While the Federal Trade Commission conducts its current cross-country hearings this week on the merits of a pipe fitting whose composition and crystal structure are said to make hard water act soft, chemical industry men are concerned about the possible "hardening" effect on consumers. Will the Evis water conditioner case, industry leaders wonder, tend to hurt chemical sales by making people cynical about all kinds of scientific products?

The Evis water conditioner (*CW, March 27, p. 28*) is under attack before hearing examiner Abner Lipscomb because of advertising claims that FTC considered too sweeping for a simple metal fitting that appears to be made out of ordinary materials—cast iron in the less expensive models, bronze for use with copper pipe. For example, Evis used to assert that use of its fittings would prevent formation of scale in boilers, remove offensive tastes, repel scum, and make one gallon of water do the work of two. Evis now has toned down its claims; e.g., "makes most hard waters behave 'tame'."

Proof Is Difficult: The first round of hearings – Los Angeles, San Francisco, Pullman, Wash., and Portland, Ore.—will be followed by sessions in the Midwest and the East later this summer and fall. It could easily be a full year before FTC announces a decision. This might be delayed by a government move for a court order to compel Evis officials to state the composition of the conditioners. Meanwhile, Evis continues to market the gadget in various sizes.

Two things were apparent in the early sessions, which ended last week:

- Laboratory testing cited by FTC counsel and witnesses doesn't confirm the Evis claims. (Treated water seems to act the same as untreated water in sudsing, scale formation, corrosion.)
- Defensive tactics employed by Evis counsel James Michael are weakening the effect of such unfavorable testimony, may tend to make people skeptical about other chemical process products. (Michael deflated the import of some testimony by pointing out that the witness has been employed by the makers of other water-treating devices; countered another man's evidence by saying that Evis claims are based on actual performance, not laboratory experiments; and struck back at "mystery" charges by getting a third witness to say that not much is known about the ion-exchange mechanism either.)

Said one chemical company representative after the San Francisco session: "We're spending quite a bit to educate the public about the hard water problem—and testimony like that certainly won't help win public acceptance of the cure."

Well on the Road

West German chemical manufacturers have long held that a major step in the drive to regain economic and industrial footing with the Western Allies has been the free convertibility of the deutsche mark. Of particular importance: it would be immeasurably simpler to encourage the investment of U.S. dollars in Germany, were there no bars on withdrawal of earnings.

Convinced of the urgency of the problem, Economic Minister Ludwig Erhard, backed by the Assn. of West German Industries, has been waging a battle to "get Germany on the road to full convertibility" for two years. But not until this week has it seemed that he would gain his point. With foreign currency and gold holdings exceeding $2 billion, German legislators would appear ready to remove the final blocks to free convertibility.

Chipping Away: Already, specific controls on foreign investment have been erased. Of greatest importance to U.S. chemical manufacturers: the rule that until April 1 forbade foreigners from maintaining deutsche mark accounts in West German trade banks. Today, all such accounts are either fully or partly convertible. If fully convertible, they can be changed into dollars at any time; if partly convertible, they may be used to pay for imports acquired not only in Germany, but also in any country belonging to the European Payments Union, or in any country (with one or two exceptions) with which the Federal Republic trades under a bilateral trade pact.

MINISTER ERHARD: "Great strides on road to full convertibility . . . "

Practically, this means that a U.S. firm selling chemicals to West Germany is no longer forced to spend the proceeds of its sales there, but can buy from other countries instead if it so chooses. The major danger (from a German point of view) is that German exports may suffer as a result. "But," says Erhard, "the gains we can make far exceed the dangers."

Other important moves on the road to full convertibility have also been made recently—mainly with respect to capital assets, shares and bonds owned in Germany by foreigners. Owners of these assets may now have the earnings freely transferred abroad at the official rate of exchange, whether they be dividends, interest on other securities, rents, or profits. Only two exceptions to the rule still hold: (1) no transfer is yet possible for interest payments on bank accounts, and (2) in the case of securities bearing a fixed rate of interest, no transfer is possible unless the security has been held for at least one year.

Withdrawal Wanted

Particularly vexed at governmental production of paints, fertilizers and other industrial items (*CW, May 15, p. 20*), a congressman from one of the nation's leading chemical-producing states is plugging this week for backing for his bill aimed at speeding the U.S. government's withdrawal from

manufacturing operations that compete with private companies.

As a member of the House subcommittee now completing a year's study of federal manufacturing, Rep. Frank Osmers (R., N.J.) has become convinced that these business-type activities "constitute a real threat to private industry and labor." His bill would set up an "antigovernment competition board"—composed of the Secretary of the Treasury, Secretary of Commerce, Comptroller General and the Director of the Budget Bureau—that would make recommendations at six-month intervals on curtailment of such operations.

In the case of one government-owned chemical plant, there seems to be a chance of disposal of the property to private ownership this year. The Army's Corps of Engineers received bids from Columbia-Southern, Diamond Alkali, and Solvay Process Div. of Allied Chemical & Dye on the chlorine-caustic plant at Muscle Shoals, Ala. Bids on the two-year-old plant, built by Monsanto at a cost of more than $20 million, reportedly ranged from $7.5 million to $18 million.

EXPANSION . . .

Carbon Black: Continental Blacks, Inc.'s $2.7-million high-abrasion carbon black plant at Ponca City, Okla., will be ready for operation soon. The company—formed in June '53 and owned in part by Continental Oil Co. and the Shamrock Oil & Gas Co., Amarillo, Tex.—expects to turn out 40 million lbs. of carbon black annually, will receive its raw materials from the Conoco refinery, also in Ponca City.

•

Sulfuric Acid: Sullivan Mining Co.'s $3-million sulfuric acid plant at Kellogg, Idaho, already in partial production, will have (when its new acid sections are completed) a yearly capacity of 80-90,000 tons of acid. Sullivan is using the Monsanto catalytic process to convert sulfurous roaster gases into acid; Allied Chemical's General Chemical Div. has been named sales agent for the acid.

•

Synthetic Silicates: Johns-Manville Corp., New York, will start construction of a new plant to make synthetic silicates at Lompoc, Calif., within the next few weeks. Planned for operation within two years, the plant will produce products from diatomite—for use as absorbents, bulking agents, and extenders in the paint, rubber, fertilizer and insecticide industries. No estimated size or capacity of the plant has been released, but Johns-Manville has been operating pilot plants at Lompoc and Manville, N.J. for some time.

•

Ferric Chloride: Pennsylvania Salt Manufacturing Co.'s Industrial Chemicals Div., has doubled its capacity for anhydrous ferric chloride, at Wyandotte, Mich.

COMPANIES . . .

Freeport Sulphur Co. has finished repaying the $1.1 million loan it got from the government in 1952 to help start the U.S.-owned nickel plant in Nicaro, Cuba. Nicaro — one of the world's largest nickel plants — was built and operated for the U.S. by Nicaro Nickel Co., a subsidiary of Freeport, and the $1.1 million was loaned specifically to help Freeport and Nicaro buy up surrounding ore deposits to supply the plant.

In addition, Nicaro has paid the government $308,600 in dividends on stock that it issued.

•

The U. S. government now details the recent sale of its alcohol plants at Muscatine, Iowa, to Grain Processing Corp. (**C.W. Newsletter, May 1**). Price: $655,000. Terms of the agreement give Grain Processing 13 years in which to pay for its property. When built, in 1943 by the Defense Plants Corp., the facilities cost $4 million, but government officials say the U.S. is not losing money on the sale, since more than $3.5 million rent has been collected since 1943.

•

Mac Kenzie and Lang, Inc., New York has filed articles with the office of the secretary of state, Albany, N. Y., changing its name to MacKenzie Chemical Works.

•

Sanitary Container Service Corp., Winston-Salem, N. C., has been issued a charter of incorporation by the secretary of state, Raleigh. Authorized capital stock: $100,000; subscribed stock $300.

•

Ferro Corp., Cleveland, has acquired the patent rights and related assets of Peterson Kiln Co., Los Angeles. No purchase price has been released.

•

The Lummus Co., Canada, Ltd. has started construction of two units—cracking and hydrodesulfurization—for the new Canadian Petrofina Ltd. refinery at Point Aux Trembles, Que. Completion of the units is scheduled for Sept. 1955.

No Limit to Possibility

ISRAEL'S RAPIDLY RISING chemical industry has been spurred in no small measure in recent months by exploitation of potash deposits in the Dead Sea area. Hauled up from 1,300 ft. below sea level—the lowest surface point in the world—to 1,500 above sea level in a seven-mile run by U.S.-built trucks, potash stands a good chance of soon becoming one of Israel's major export items.

COSDEN XYLENE (10°)*

Specific gravity	0.87
Acid wash color	0 to 1
Flash (Tag C. C.)	78°F
Paraffins	0.1%
Copper corrosion	pass
Sulfur compounds	nil
Acidity	nil
Odor	Sweet
Color	Water white
Mixed aniline point	11°C
KB value	98
Distillation IBP	136°C
50%	140°C
Dry Point	144°C

*Meets A S T M Spec. D846-50

✓ Superior Stability
✓ Unusually low paraffin
✓ Sulfur free
✓ Typically aromatic
✓ Premium solvency

WRITE FOR
Bulletin 109-53

ORGANIC CHEMICALS DIVISION

COSDEN PETROLEUM CORPORATION

BIG SPRING, TEXAS

Wealth in Wells and Mines

(Oklahoma's mineral production in 1950)

Bituminous coal	3,050,000 tons
Carbon black	(not available)
Lead	20,724 tons
Natural gas	607,918 million cu. ft.
Natural gas liquids	20,946,000 bbls.
Petroleum	164,899,000 bbls.
Zinc	46,739 tons

Growth in Chemical Community

(Number of chemical process firms in Oklahoma)

	1948	1953
Industrial chemicals	24	31
Drugs, medicines, cosmetics, insecticides, etc.	30	32
Paints, varnishes and colors	9	9
Soap, glycerine and detergents	6	8
Fertilizers	3	8
Animal and vegetable oils	4	5
Gum and wood chemicals	1	3
Miscellaneous chemicals	9	12

The Sooners Beckon: Data and Destiny

It used to be known as the Indian Territory; since 1907 it's been called the Sooner State; and now Oklahoma is bidding for a new title, "Chemical center of the Southwest."

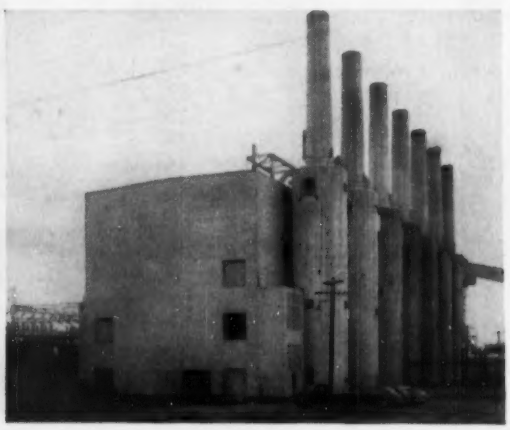
In beckoning to the chemical process industries, the Sooners want it understood that they know what they're doing. This week, the Oklahoma Planning & Resources Board is telling the world that it's primed with specific data bearing on prospects of various kinds of chemical ventures in that oil-rich state.

By now, nearly every state has started some type of campaign to induce industry to make greater use of the state's material assets. But Oklahoma is believed to be one of the first to undergo a statewide industrial survey—made by a firm that does that same kind of work for private companies—aimed at providing information as to the state's chemical potentialities.

Microscopic Preview: This survey—which has yielded a preliminary list of 14 chemicals regarded as having the best chances of profitable production in Oklahoma—was requested by planning board members Morton Harrison and Czar Langston after they had seen a report prepared by Blaw-Knox Co.

Such a report, of course, relates in detail an analysis of a proposed plant construction project, including an appraisal of costs, number of personnel required, suggested locations, type of equipment and utilities needed, and economic feasibility. Hundreds of such reports have, of courses, been drawn up by various engineering firms to help industrial clients determine whether certain plants should be built.

Impressed with the scope of the report and realizing its value to a manufacturing company, Harrison and Langston wondered why a similar job couldn't be done for Okla-

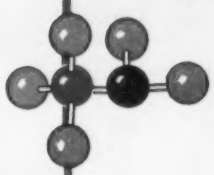


MAIN ATTRACTIONS: Plenty of gas, oil (as at Conoco refinery, Ponca City), power (as at Grand River steam plant, Pryor).

LOW-COST INTERMEDIATES IN TANK-CAR QUANTITIES

This versatile trio represents the most economical source of the amine group because of their low equivalent weights and moderate prices. Marketed by CSC in both anhydrous and aqueous forms, they are available for shipment in large-volume quantities (tank cars) as well as in drums and smaller containers. Write for latest Technical Data Sheet. Industrial Chemicals Sales Dept., Commercial Solvents Corporation, 260 Madison Avenue, New York 16, N. Y.

MONOMETHYLAMINE CH_3NH_2



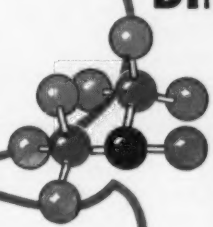
Uses

Manufacture of amide and sulfonated amide-type detergents and surfactants. Synthesis of caffeine, aminophylline and desoxyephedrine. Manufacture of photographic chemicals, the explosive tetryl, amide-type plasticizers, ion-exchange resins, corrosion inhibitors and paint removers.

Properties

Molecular Weight	31.06	
Boiling Point at 760mm, °C	– 6.79	
Flash Point, Tag Open Cup, °F	34	(30% sol)
Density at 20°C	0.912	(30% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6	(30% sol)

DIMETHYLAMINE $(CH_3)_2NH$



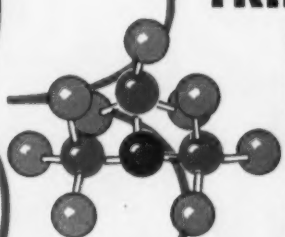
Uses

Raw material in manufacture of thiuram sulfide-type vulcanization accelerators and of dimethyldithiocarbamic acid salts used as fungicides. Neutralizing and solubilizing agent in preparation of concentrated solutions of 2,4-D salts. Manufacture of anti-malarials.

Properties

Molecular Weight	45.08	
Boiling Point at 760mm, °C	6.88	
Flash Point, Tag Open Cup, °F	54	(25% sol)
Density at 20°C	0.921	(25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.7	(25% sol)

TRIMETHYLAMINE $(CH_3)_3N$



Uses

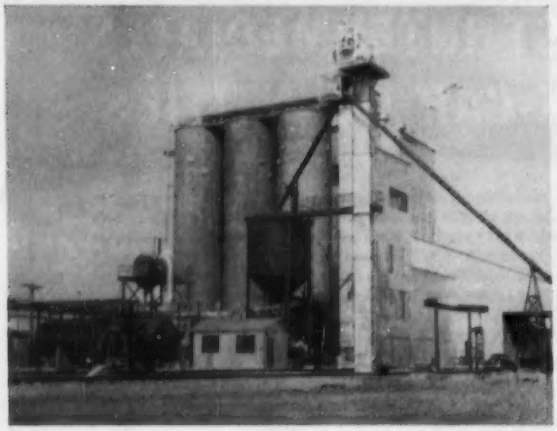
Preparation of long-chain quaternary ammonium compounds used as softeners, lubricants and waterproofing agents for textiles. Used with benzoyl peroxide to "set" methacylate resins. Synthesis of cationic surface-active agents.

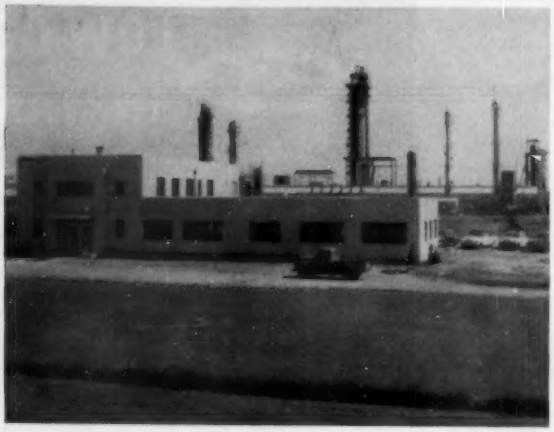
Properties

Molecular Weight	59.11	
Boiling Point at 760mm, °C	2.87	
Flash Point, Tag Open Cup, °F	38	(25% sol)
Density at 20°C	0.913	(25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6	(25% sol)

COMMERCIAL SOLVENTS
CORPORATION

INDUSTRIAL CHEMICALS





CHEMICAL COLONY: Already in business at Pryor, Midwest Carbide (calcium carbide) and Deere & Co. (ammonia, urea).

homa—i.e., analyzing the state's resources with a view to attracting more industry.

Where to Focus: Officials of Blaw-Knox's Chemical Plants Division at its Western headquarters in Tulsa felt that such a program would be practical, but pointed out the need to determine what chemicals would be worth detailed study and reporting. It was decided that a preliminary report should be made evaluating natural resources, existing chemical production and other pertinent data. On the basis of that information, the staff drew up a list of chemicals in the production of which an Oklahoma location would have certain advantages.

The survey team then got industry experts to check each item for market prospects, extent and location of competitive production, present situation of companies that might be interested in starting production in Oklahoma, and availability of a commercially proved process.

Team members approached this part of the task from two standpoints: What the state has now in the way of raw materials, and what the state would like to have in the way of chemical intermediates whose availability would tend to attract other processing industry. Oklahoma's most abundant raw materials of chemical significance: refinery gases, liquified petroleum gases, salt and oil field brine, limestone, natural gas, cottonseed and other vegetable oil materials, silica sand, and coal.

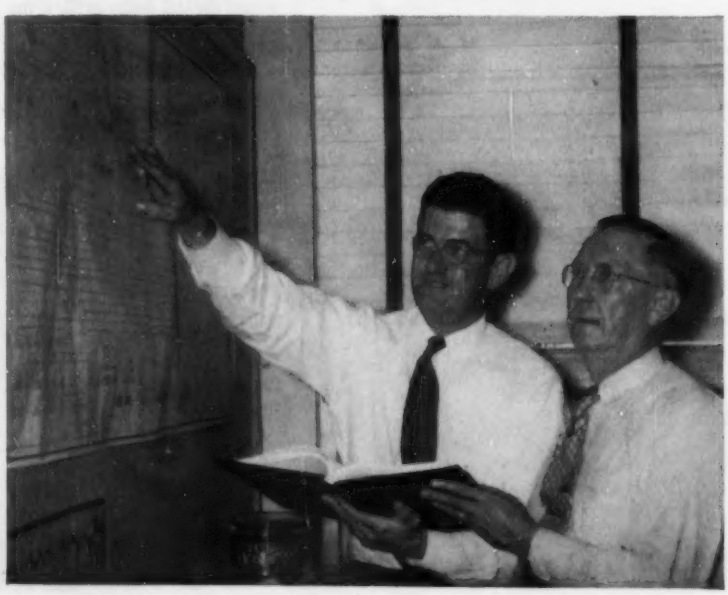
From this preliminary evaluation, the group has narrowed the list down to the 14 recommended products, which are now to be studied in more detail. Complete reports on these will include estimate of investment required, sources and requirements of raw materials and utilities, and analyses of manufacturing costs, markets and possible plant sites.

No Boom-and-Bust: In some industrial development schemes, civic groups have put together general information about climatic, geographical, transportation and market conditions of their localities; but, says Manager F. D. Parket of Blaw-Knox's Western headquarters, they have left to the industrialist the problem of combining such background information with his specialized needs to develop a technical and economic analysis of the possibilities of locating there.

The purpose of "Operation Oklahoma," Parket explains, is to gather and put into usable form factual information on chemical process industries for which there are reasons for locating in Oklahoma. This serves two purposes:

- It makes it possible for industrialists planning new facilities to determine with minimum effort the feasibility of their proposed operations if located in the state.
- It helps insure that such industries as do locate there will have a sound basis for operation and growth, thus avoiding "boom and bust" enterprises that hurt the community in the long run.

Oklahoma officials right up to Gov. Johnston Murray are backing this organized approach to industrial development. The governor avows that the survey "reflects the sincerity and aggressiveness of Oklahoma in its all-out effort to encourage new and expanding industries to move to our state and take advantage of its natural and human resources."

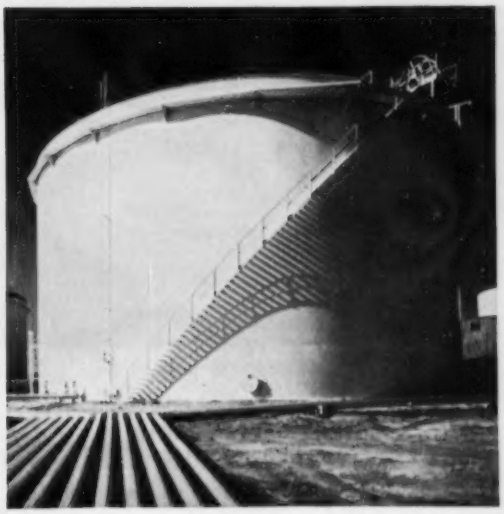


PLANNERS LANGSTON, HARRISON: For chemical companies, facts, not fables.

GENERAL AMERICAN TANK STORAGE TERMINALS

HANDLE ANY LIQUID THAT CAN BE TRANSPORTED

Chemicals
Petro-chemicals
Petroleum products
Molasses
Vegetable oils



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By using General American Tank Storage Terminals in five major marketing centers, shippers and processors of bulk liquids save on shipping and can distribute their products to the market as needed.

TERMINALS:
Chicago, Illinois; Galena Park and Pasadena (Port of Houston) and Corpus Christi, Texas; Port of New York (Carteret, N.J.); Port of New Orleans (Goodhope, La.)

Modern facilities for barrelling and drumming at all terminals, plus complete canning equipment at Carteret and Goodhope.

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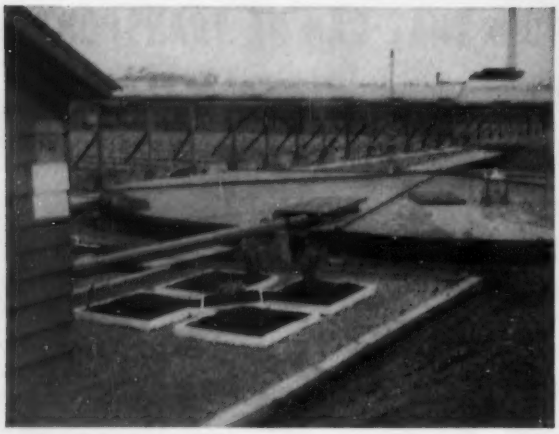

ARMY SYSTEM: Solution is pumped from sump tank . . . through pipes to gravel-lined beds 80 to 120 ft. long . . .

Presage of Things to Come?

An old airstrip for Japanese kamikaze hell-divers, 13 miles west of downtown Tokyo, is today producing millions of pounds of vegetables that have never touched soil. Built, run, and managed by the U.S. Army Quartermaster Corps., it may someday prove to be the model after which Japanese hydroponic farms will be patterned—farms that could solve the age-old problem of food production in the Islands, and open up a new market for Japanese chemical producers. Japan's food shortages, in peace as well as in wartime, have been an issue of prime importance to successive governments. Growing populations and rising standards of living have compounded the problem of finding enough arable ground to feed Japan's millions. Impressed by the complexity of the matter, economists and diplomats alike have ventured that if Japan's food deficit could be licked, a major cause of her continued militarism would be removed.

The Army's venture at Choufu, however is far from entirely altruistic. Started in 1946 to provide American occupation troops with vegetables (without depriving the Japanese of any needed soil-land), the farm's development became vital with the outbreak of war in Korea. Production was stepped up and beside its 55-acre tract at Choufu, Army officials sanctioned another hydroponic farm at Otsu, near the ancient city of Kyoto. There alone last year on (a 25-acre site), over 2.1 million lbs. of vegetables were produced.

Beside the boost that it will give to Japanese food supplies this year (with U.S. troops withdrawing from Korea), the expansion means big business for Japanese chemical manufacturers. Standard solution with which the Army irrigates its farms includes 36 lbs. of potassium chloride, 280 lbs. sodiumsulfate, 1,015 lbs. magnesium sulfate, 1,100 lbs. calcium sulfate, 125 lbs. calcium phosphate, 300 lbs. potassium nitrate, 180 lbs. calcium nitrate, 3,132 lbs. ferrous ammonium citrate, 101 lbs. boric acid, 70 lbs. copper sulfate, and 79 lbs. zinc sulfate—all dissolved in 95,000 gal. of water.

The gravel beds are regularly irrigated—from two to four times daily—depending upon the rate of evaporation and utilization of the chemical plant nutrients.

But what impresses the Japanese most is that a large proportion of the chemicals used are purchased from Japanese manufacturers. And the produce that's harvested is, by Eastern standards, relatively cheap. Once initial investment is written off, e.g., cucumbers can be produced for 8¢/lb., tomatoes for 17¢/lb.

Although no Japanese-owned hydroponic farms now exist—probably because of the high initial cost of construction—U.S. observers are convinced that once Japanese civilians become aware of the possibilities offered by hydroponic farming, the idea will take hold fast. Expediters: the Japanese government may decide to subsidize hydroponic farming until individual producers can gain financial footing; and chemical companies (several of which have reportedly been considering the idea) may resolve to go ahead with hydroponic farming on their own—offering produce as an incentive to workers.

At any cost, it's only a matter of time (and money) until Japanese farmers start harvesting crops from gravel. But what hydroponic farming will mean in terms of Japanese economic independence, only time will tell.

then back via drains for recirculation.

Barred from Trading

Five Canadian companies have been barred by the Securities and Exchange Commission from selling stocks in the U.S. The restrictive action was taken last week by SEC—which at the same time cleared 43 other Canadian companies to engage in security trading.

SEC says the five blacklisted companies wilfully violated the U.S. Investment Company Act by making "false and misleading representations" in the sale of various Canadian securities. The violators: Adelaide Securities, Ltd. H. R. Cory & Co., R. W. Brown, Ltd., Greenwood Securities Corp., and Tormont Trading Corp.

PICCO

PICCOUMARON

Para-Coumarone-Indene Resins

CHEMICAL PROPERTIES — Piccoumaron Resins have good acid resistance, being inert to all except strong concentrated oxidizing acids and they have good alkali and salt resistance. Acid number is approximately zero; they do not react with most pigments.

PHYSICAL PROPERTIES — Piccoumaron Resins vary from liquids through viscous liquids, and tacky solids to high melting point brittle solids. Colors vary from a deep reddish brown to pale yellow. The resins are thermoplastic and do not become infusable on heating. Weights average 8.5 to 9.2 lbs. per gallon.

SOLUBILITY—In coal tar solvents, turpentine and terpene solvents, and in most ketones all grades are soluble. Most grades are soluble in most chlorinated solvents and derivatives and in esters; mainly insoluble in aliphatic alcohols and soluble in aromatic alcohols. They are largely soluble in drying and semi-drying oils.

COMPATIBILITIES — Most of the Piccoumaron Resins are compatible with most of the natural resins and all are compatible with oil-soluble phenolic type resins, and chlorinated diphenyl types of resins. They can be blended with long oil alkyds of certain grades. They are compatible with petroleum residues, coal tar residues, pitches resulting from oil refining and pine tar. The resins are mainly compatible with paint and varnish oils and with various types of rubber and rubber-like materials.

Considerable use has been made of combinations of Piccoumaron Resins with chlorinated materials where non-inflammable and flame-resistant coatings are desired.

PLASTICIZERS—Most of the chemical or ester types and aromatic hydrocarbon types of plasticizers are suitable for Piccoumaron Resins. Most heat bodied oils are likewise good plasticizers for Piccoumaron Resins. Soft petroleum residues and cottonseed pitches and the like blend well with the resins.

STANDARD SOLUTIONS — Certain grades normally used in solution are offered in tank car or returnable drum quantities.

NUMBERING SCHEDULE PICCOUMARON RESINS

	COLOR	Light 1½-3½	Medium 4-6	Reddish 6-9	Dark 9-12	Extra Dark 12-16	Extra Dark 12-16
MELTING POINT	Liquid Resin	459	429	449	469	439	
	10°C— 15°C	458	428	448	468	438	XX-10
	30°C— 35°C	457	427	447	467	437	XX-25
	40°C— 45°C	456	426	446	466	436	XX-40
	50°C— 55°C	455	425	445	465	435	XX-55
	65°C— 70°C	453	423	443	463	433	XX-70
	80°C— 90°C	452	422	442	462	432	
	95°C—105°C	450	420	440	460	430	XX-100
	110°C—120°C	450H	420H	440H	460H	430H	XX-115
	120°C plus	450EH	420EH	440EH	460EH	430EH	

SPECIAL GRADES—Special grades of Piccoumaron Resins can be made when required.

The colors shown are on the Coal Tar Resin Color Scale. The melting points are by the ball and ring method.

WRITE for technical bulletin giving complete information on Piccoumaron and samples for examination and testing. If you will describe application, we will be glad to recommend suitable grade.

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District Sales Offices
New York, Chicago, Philadelphia, Pittsburgh

Pennsylvania Industrial Chemical Corp. (CW)
Clairton, Pennsylvania

Please send bulletin and samples of Piccoumaron for (application)_____

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Name_____ Position _____

Company_____

Address_____

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American Resinous Chemicals Corporation has developed resin solutions, emulsions, hot melt adhesives and coatings, specifically designed for many applications. In each case these adhesives must meet production line methods that turn out thousands and thousands of products at low cost. Furthermore they must work regardless of the type of equipment involved. The success of ARCCO adhesives and coatings in all cases is a tribute to their almost limitless versatility.

Remember, too, ARCCO can develop finished compounds for you which will also have the same success on all types of applications.

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These versatile hot melt combinations of synthetic polymers with paraffin and micro-crystalline waxes are constantly finding new uses among paper converters. Arwaxes upgrade paraffin waxes, improve moisture resistance — are non-blocking — and best of all, are economical in use. Write for data sheets C45 and C46.

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IN CANADA: American Resinous Chemicals of Canada, Ltd., Toronto, Canada

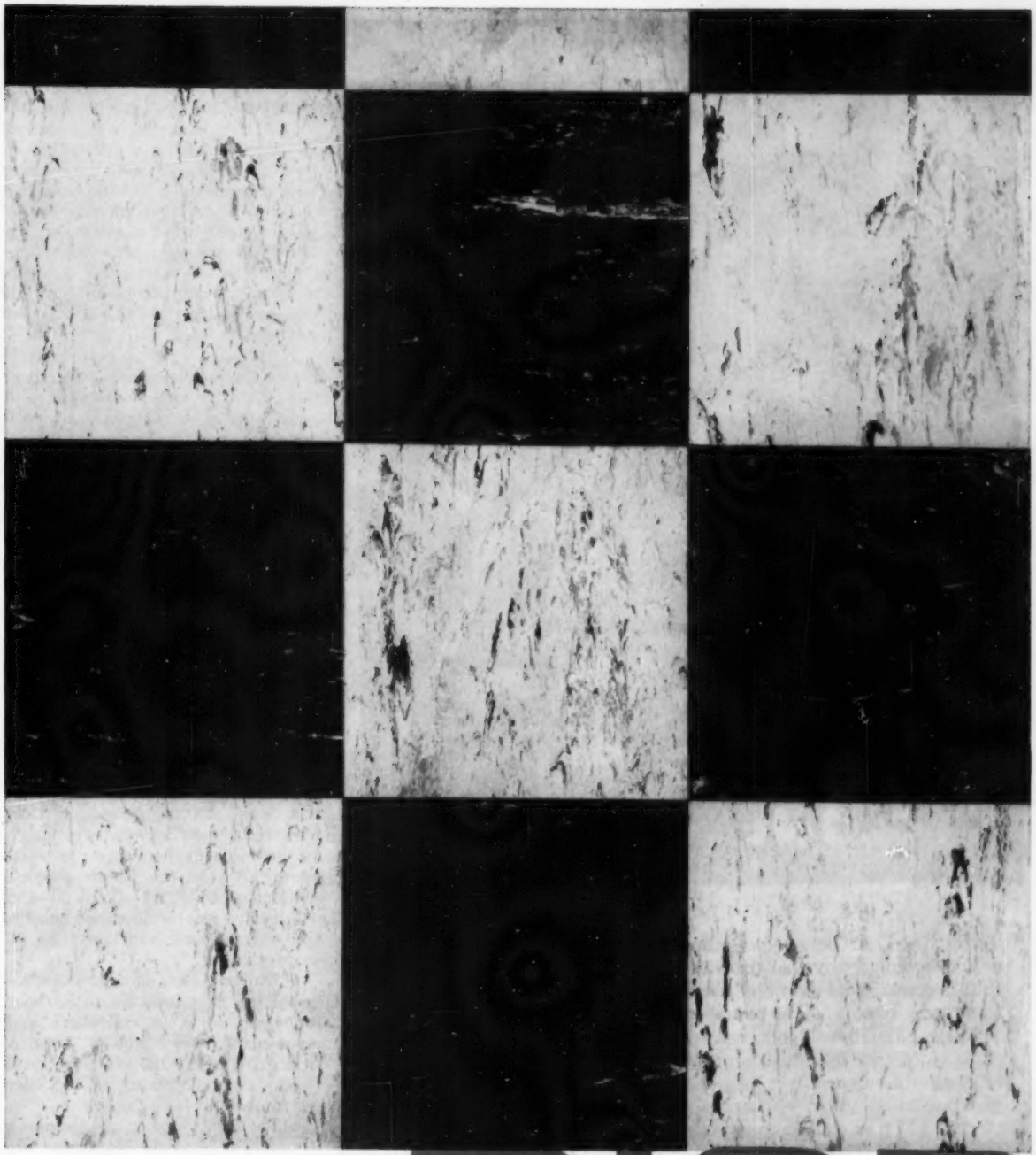
CHICAGO'S RANDLE, ALLEN: For management, a tip to take the initiative.

LABOR. . . . . .

No Light Jest: This week brings still more evidence that the labor unions' clamor for a guaranteed annual wage is not just a passing whim. To both labor and management, advice has been offered that it will be to either side's advantage to take the initiative in negotiations on this topic.

• "Great rewards" can be realized by companies adopting a positive program of action on GAW, rather than waiting for the labor unions to put them on the defensive. This is the word from James Allen and C. Wilson Randle, management consultants, who feel that GAW now is to be taken more seriously than ever before. (There's a favorable bargaining environment, they reason, and union demands have become more realistic.) In an article in the *Harvard Business Review*, Allen and Randle suggest that each company analyze its past employment ups and downs, be prepared to propose some kind of stabilization program.

• Unions themselves might be able to handle GAW better than employers, hints a Detroit industrial re-



these and many other vinyl plastic products enjoying an increasing consumer demand — are made with economical and effective

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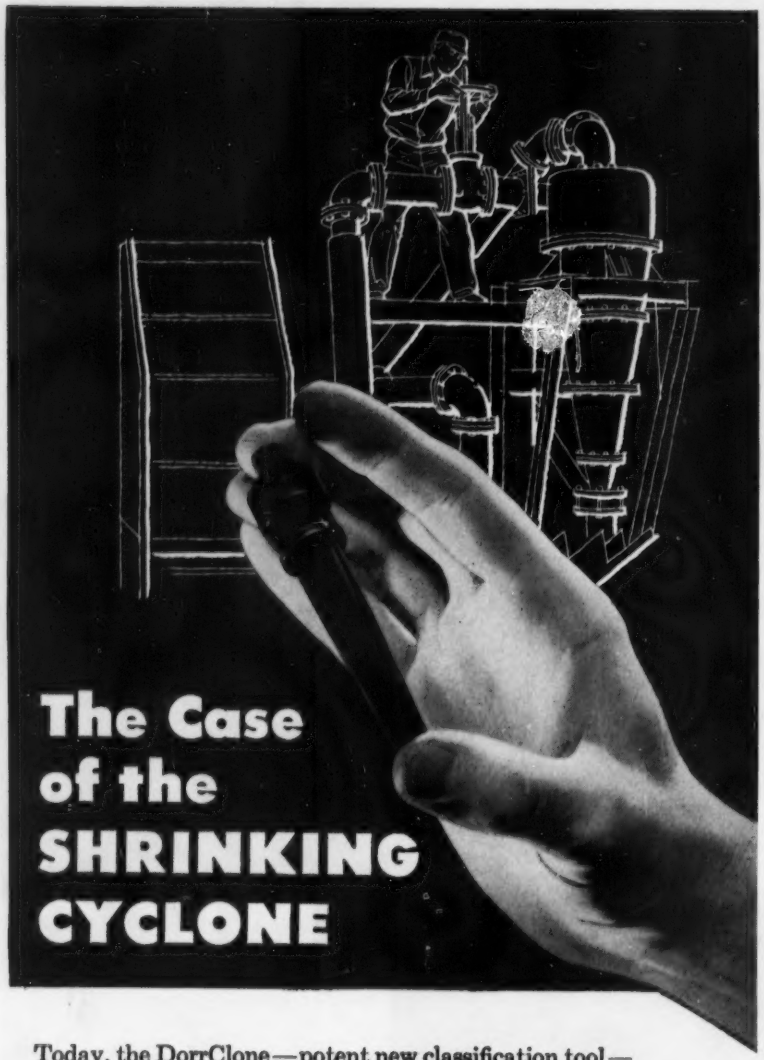

Today, the DorrClone—potent new classification tool—is undergoing a physical transformation. Experience has proven that decreasing its diameter increases the fineness of the separation made. Result... the pencil-size TM DorrClone shown above.

These bakelite midgets, nested 32 to a housing, are doing big things in filtrate clarification and fine size classification in the 2 to 20 micron range. Clays, pharmaceuticals, fillers, pigments, talc, grinding compounds — all can be economically processed by these 10 mm TM's or their companion 15 mm units of molded rubber.

The case of the shrinking cyclone is a good example of the constant evolution of Dorr machines and methods. If you have a problem involving the separation of finely divided solids in suspension, the use of ion-exchange, or fluid techniques, the chances are good that we can be of service to you through our worldwide organization.

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lations specialist. Frank Rising, general manager of the Automotive Parts Manufacturers Assn., points out that if the CIO, for example, were to set up an office to collect a percentage of workers' wages, it would have one clear advantage: payments from this union-sponsored fund would not disqualify unemployed members for regular state unemployment compensation; whereas in most states, if a person receives any pay at all from his regular employer, he's ineligible for state aid.

•

Closer Union Teamwork: An indication that the nation's oil, gas and petrochemical employees really will unite behind the proposed Oil & Chemical Workers International Union is seen in news that Standard Oil of Ohio will face unified contract demands from four of its CIO, AFL and independent unions when negotiations begin in September. Meeting in Cleveland last week, representatives of the four unions agreed that actual wage demands would hinge on the coming wage policy meeting of the Oil Workers International Union (CIO) this week.

•

New Wage Hikes: Chemical pay rates are still climbing, regardless of what the unions say about a recession. Latest increases:

- Some 450 employes at Dow Chemical's plant in Pittsburg, Calif., are getting a 5¢/hour pay rise retroactive to May 3. These people—represented by ICWU Local 23—also will receive greater insurance benefits and a three-week vacation after 10 years' service.
- Du Pont has offered wage increases ranging from 5¢ to 8¢/hour to employees at its cellophane and rayon plants near Nashville, Tenn. A spokesman for Textile Workers Union (CIO) said acceptance of the offer was probable.
- The 1,700 workers at Monsanto's Krummrich plant at Monsanto, Ill., have accepted the company's offer of a 5¢ wage increase and a new sick leave plan—80% of base pay for 13 weeks.
- The same upward trend is continuing in related industries as well. At Miami Beach, Fla., Libbey-Owens Ford and Pittsburgh Plate Glass and the Federation of Glass, Ceramic & Silica Sand Workers (CIO) agreed on one-year contract renewals with a 7¢/hour wage increase covering 22,000 employees in Ohio, Illinois, West Virginia and Pennsylvania.

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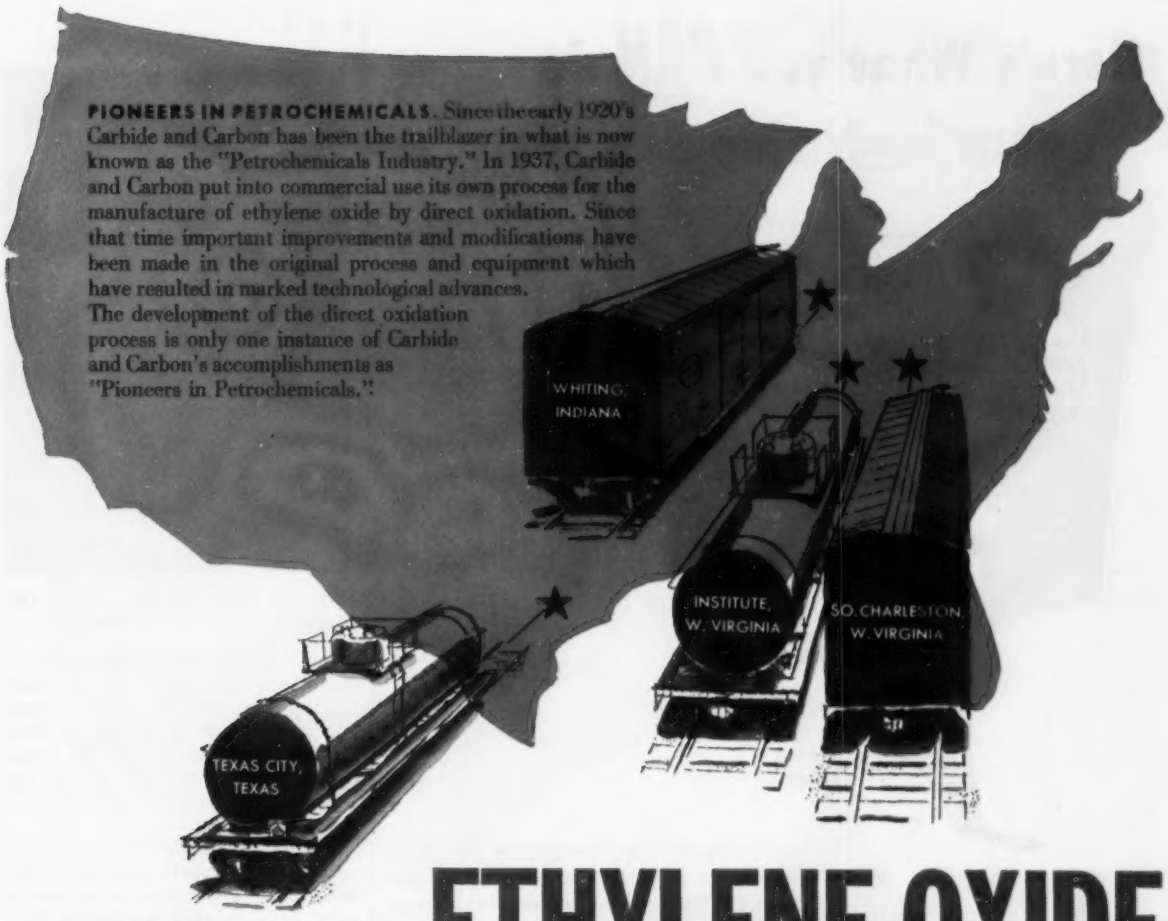
Jobless Pay Rates: Following Presi-



PIONEERS IN PETROCHEMICALS. Since the early 1920's Carbide and Carbon has been the trailblazer in what is now known as the "Petrochemicals Industry." In 1937, Carbide and Carbon put into commercial use its own process for the manufacture of ethylene oxide by direct oxidation. Since that time important improvements and modifications have been made in the original process and equipment which have resulted in marked technological advances. The development of the direct oxidation process is only one instance of Carbide and Carbon's accomplishments as "Pioneers in Petrochemicals."

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If you use ethylene oxide, call or write the nearest CARBIDE office for your copy of "Operating Procedures for Handling Ethylene Oxide." Ask for Form 7618. For information on ethers or other oxides, request Form 4764.

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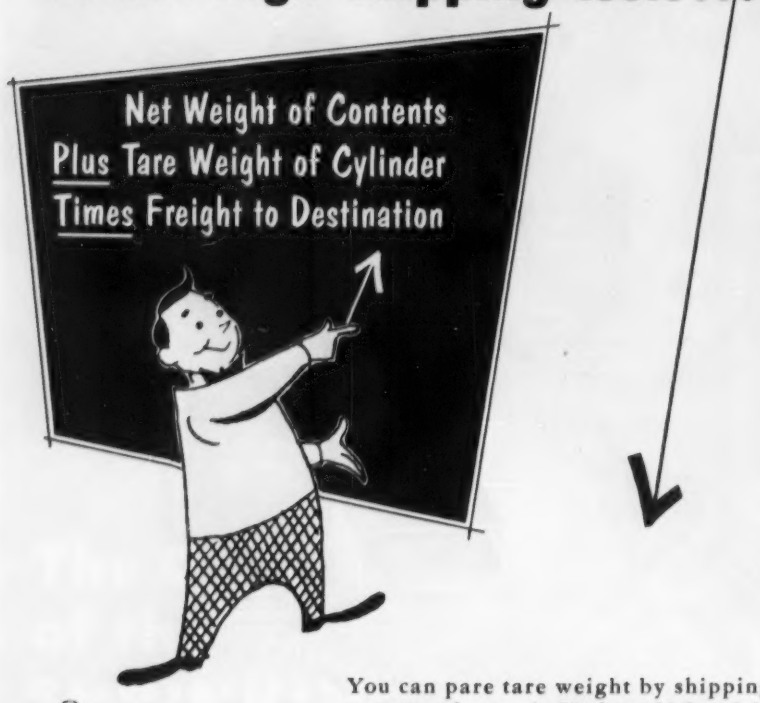

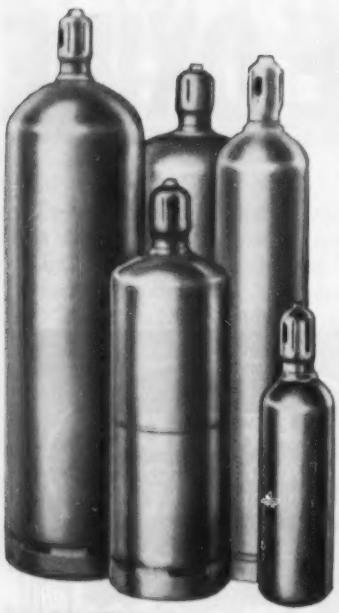

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INDIANA GOV. CRAIG: From Legislature, he wants one bill only.

dent Eisenhower's recommendation for higher payments out of state funds for unemployed persons, a number of states are beginning to move in that direction. In most states, there'll be no action until next spring, when more than 40 of the legislatures will be in session.

Two Midwest governors, although sympathetic to union requests for increased unemployment compensation rates, have decided not to call their legislatures into special session this year. Gov. George N. Craig of Indiana had been planning to convene a special session this year, but changed his mind when he learned that the lawmakers would want to take up other items of business as well. Gov. William Stratton of Illinois convinced that unemployment has leveled off in his state, says he'll wait until next year to ask for an increase. In both states, present maximum is $27/week.

In Ohio and Wisconsin, the state CIO councils are pressing for rises in jobless pay rates.

LEGAL . . . . . .

Plaintiff Must Pay: "It is a virtue of our system, and not a vice, that the lack of facts remains a vital deficiency," the Delaware Supreme Court commented in upholding a Court of Chancery order that Tessie Gottlieb must pay the court costs of her unsuccessful action against Heyden Chemical Corp. She had sued to prevent the issuance of incentive stock options to the company's principal executive counsel, but lost the case on trial. The high court explained that the losing litigant ordinarily pays un-

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table of average properties

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Bromine No.	138		119
Boiling Range:			
Initial	214.7 F.	348.1 F.	273.0 F.
10%	215.8 F.	350.2 F.	281.7 F.
30%	216.1 F.	351.1 F.	282.8 F.
50%	216.7 F.	351.9 F.	283.5 F.
90%	218.3 F.	353.1 F.	289.4 F.
Dry Point	220.1 F.	354.6 F.	296.6 F.

*@60 F.

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Atlantic Olefins are also used for the production of such chemicals as oil-soluble sulfonates, alkyl mercaptans, alcohols, and halogenated compounds. Their important properties have opened up large areas for improvement of both quality and economy in large-scale manufacture of rubber chemicals, varnish resins, germicides, insecticides, dyes and surface active agents.

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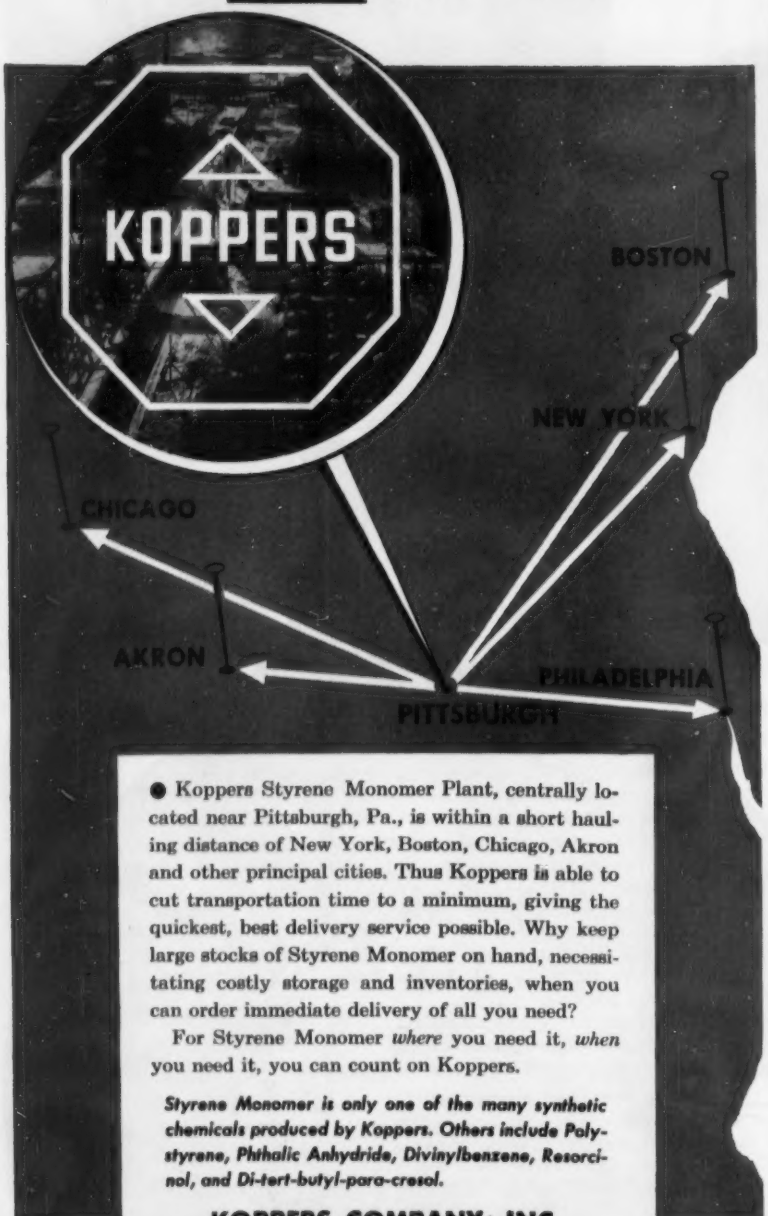

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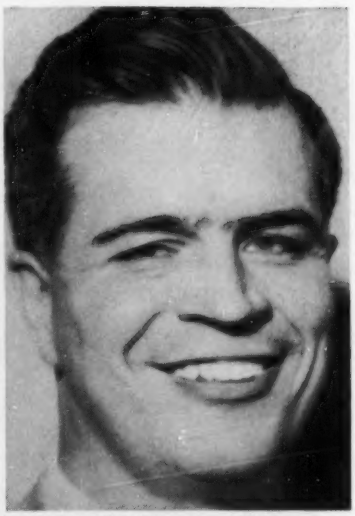

GOV. WILLIAMS: For Michigan corporations, no veil of financial secrecy.

less the defendant corporation—even though it wins the case—has been substantially benefited by the action; and in this case, the justices said, it was not shown that Heyden derived any financial gain.

•

No Fiscal Privacy: A bill that would have changed Michigan law to permit corporations to omit financial data from the annual public reports they're required to file has been vetoed by Gov. Mennen Williams. "Sound public policy," he declares, "requires the continued public disclosure of pertinent information concerning the operations of Michigan corporations." The bill would have required corporations to file two reports: one containing general information, which would have been a "public record"; the other containing financial information, which would have been kept secret.

•

Pharmaceutical Patent: G. D. Searle & Co., Skokie, Ill., and the R.S.A. Corp. of Ardsley, N.Y., are working out a settlement of the suit brought by Searle attorneys in U.S. District Court, New York, over alleged infringement of the Cusic patent (No. 2,499,058) on 8-haloxanthine salts of diarylalkyl dialkylaminoalkyl ethers. Searle asked for an injunction, an accounting of profits, and judgment for damages and costs; but Robert Anthony, president of R.S.A., said an out-of-court settlement was likely. He said that R.S.A. had handled some of the product as part of a resale contract, but that his company hasn't produced any of that compound.

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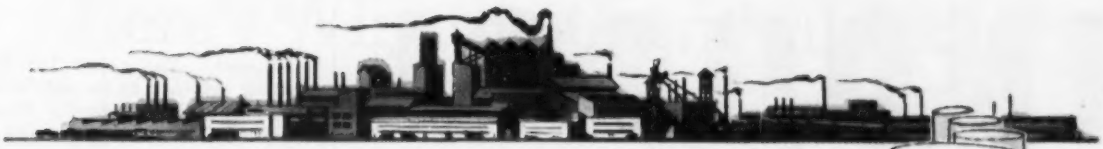
Guncotton Lawsuit: In federal court



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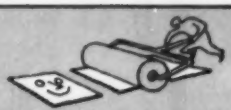
Shot-blasting process removes troublesome oxide scale from both sides of the steel sheet and leaves a clean, oxide-free surface.

2. 

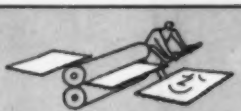
The sheet is rolled and leveled to insure a smooth even surface necessary for precision roller coating.

3.

Detergents, scalding water and revolving brushes scrub each sheet clean, followed by rinsing and drying.

4.

The sheet is treated on both sides with a special patented phosphoric compound to inhibit rusting, enabling Rheem Drums to withstand long periods of weathering.

5. 

Special coatings, where required, are roller-coated under precision control that eliminates rust-producing thin spots.

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Coatings are baked-on to produce a tough, durable finish that protects your product from contamination.

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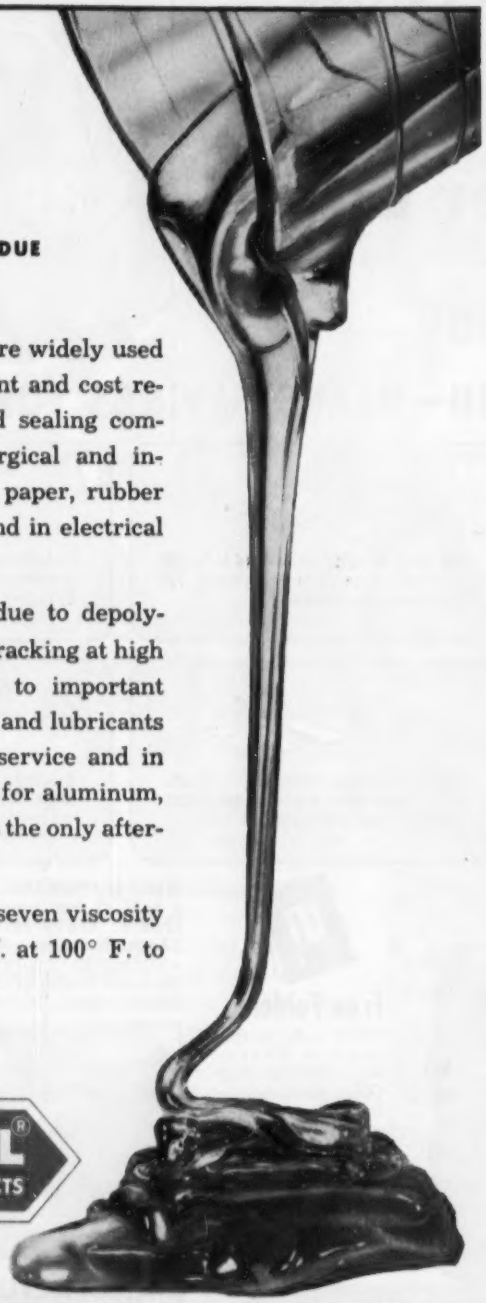

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B & I . . . . . .

at Roanoke, Va., a jury has begun hearing evidence in the suit brought by Richard E. Gunter, a Roanoke sheet metal worker, against Hercules Powder Co. Gunter demands $126,558 in damages for injuries and burns allegedly sustained when nitro cotton exploded at the Radford Arsenal, where he was working for a contractor on a renovation job.

•

Destruction Demanded: At Dallas, Tex., the U. S. Food & Drug Administration is in court asking for orders for destruction of two shipments of medicine. FDA charges that in one shipment, 40,608 child-size aspirin tablets were decomposed, and that in the other shipment, 1,296 bottles of "skin disease" medicine were mislabeled.

•

Vicara Armistice: Virginia-Carolina Chemical Corp. seems to have come out ahead in the "cease fire" settlement of the suit filed last fall by Pacific Mills over a purchase of 49 tons of V-C's Vicara tow (*CW Dec. 26, '53, p. 18*), Pacific had sued for $109,847 plus costs, but now has agreed to a stipulation that the action be discontinued with prejudice but without costs to either party against the other.

•

Acetone Frugality: In a suit, General Services Administration says that in 1950 it contracted to buy acetone from The Legion Chemicals, New York, at 64.3¢/gal., f.o.b Washington, for quantities under 40,000 lbs. and at 61¢/gal. in quantities of more than that amount, but that the defendant failed to deliver on call. As a result, GSA says, it had to buy acetone on the open market spending $4,271 between Oct. '50 and May '51 for acetone that would have cost $1,281 less under Legion contract rates.

•

No Fireworks: Illinois will be out of the fireworks market altogether this year if its citizens accept their attorney-general's interpretation of the law. Latham Castle's ruling: No one may sell or use fireworks "producing either audible or visual effects."

•

Low-Salt Labeling: Companies that are helping to provide special food products for persons whose physicians have recommended sodium-restricted diets have until June 13 to file written statements on the new labeling rule proposed by the Food & Drug Administration. It calls for statement as to sodium content per 100 grams and per serving.

Here's Why the Chemical Industry is Interested in Plant Sites Along the C&EI

***"Industrial Fore-Site" directs the Chemical Industry to examine communities served by the Chicago & Eastern Illinois Railroad . . . to find new profit opportunities for plants pointed up by the economic advantages of this Indiana-Illinois area.**

POWER

Private public utilities with millions of kilowatts capacity offer industrial power at attractive rates. Generating stations under construction will augment the supply of efficiently produced, low-cost power.

LABOR

A large, native-born, experienced labor force is available. Harmonious labor-management relations in most manufacturing plants insure smooth, uninterrupted operation of facilities.

FUEL

Coal produced in this leading mining region and oil from its wells or pipelines are economical fuels and possible chemical raw materials. Major natural gas and petroleum products pipelines traverse the area providing bulk supplies of refined fuels and the basis for chemical processing.

WATER

The Ohio, Mississippi, and Wabash Rivers have virtually unlimited water for industrial purposes. Strategic, river-side sites are available.

MINERAL RESOURCES

Abundant high-calcium limestones, fluor spar, dolomite, zinc ores, clays, sand, silica and other local mineral deposits greatly expand the area's chemical processing potentialities.

TRANSPORTATION

Situated in the Nation's leading industrial and agricultural market area, this Indiana-Illinois region is served by 20 major railroads with all modern facilities. Barge lines and river-rail transfers provide direct water access to domestic and foreign raw materials. A network of highways furnishes routes for many motor transport carriers.

***"Industrial Fore-Site"** is a shrewd management quality that gets the jump on competition by choosing plant sites with superior economic advantages.

For factual information on these outstanding industrial opportunities in this Indiana-Illinois area, write in confidence to Chief Economist:

C&EI

CHICAGO & EASTERN ILLINOIS RAILROAD

332 SOUTH MICHIGAN AVENUE, CHICAGO 4, ILLINOIS

MCA'S FOSTER: We'll be severely handicapped without a prompt census."

REP. CLEVENGER: "But why should Joe Doakes foot the bill?"

Indispensable Benchmark

Like the housewife who is taken for granted until she's sick, the full-scale census is little appreciated until it's missing. Result: there's a combined industry-government drive on now to get Congressional approval for 1955 censuses of manufactures and business before the current Congress recesses. To the chemical industry, the basic information provided by periodic censuses is particularly vital. Both the Manufacturing Chemists' Assn. and the Chemical Market Research Assn. underscore the urgency of the situation.

Says MCA's president, William Foster: "The chemical industry will be severely handicapped without a prompt census. In an industry like ours, which has experienced remarkable growth during the past several decades, basic statistics are of paramount importance for market surveys, construction programs, and other industry needs."

Chairman of CMRA's statistical committee, Scott Pattison says: "Any industry that grows as tremendously as ours must have a benchmark every five years to serve as a check on annual survey figures used for company planning."

Actually, basic legislation, passed by the Republican 80th Congress, already exists for censuses to be taken regularly—twice every decade.* But authorization is ineffectual without appropriations. And last year the Administration, searching eagerly through every dusty nook and cranny of the executive branch for ways to economize, ran onto the Bureau of the Census budget. Result: no money was voted for the 1954 census-taking.

Change of Heart: But spurred by industry complaints this year to the realization that government statistics are the base for almost every kind of economic survey, projection and forecast that's used, the Administration has hastened to make up for its early indifference. A special committee of nine top industrialists (*CW, March 13, '54*), headed by Ralph Watkins of Dun and Bradstreet, was appointed by Secretary of Commerce Weeks to study the situation. It's major finding: the flexibility of the U.S. economy can't be maintained without "the Bureau of the Census benchmarks on which nearly all current economic indicators rest in one way or another."

Chief hurdle now for Commerce's $15 million request (needed to take, tabulate, and publish the censuses) is a somewhat hostile House Appropriations Committee. When the question is put to Rep. Cliff Clevenger (R., O.), subcommittee chairman, his answer will probably be: if special business interests want a census so badly, then they should foot the bill. The attitude, it seems, represents the thinking of a small segment of small business that feels the census helps Joe Doakes far less than it helps his big, well-organized competitor.

The pro-census bloc's counter: Doakes doesn't realize that much of the statistical information he receives—uses every day—are figures boiled down from full-scale government censuses.

Mixed Reaction: But while CW finds that the need for a new census of manufactures is universal among chemical industry people, today it also finds that there's widespread criticism of Census Bureau methods.

"The bureau ought to strike a balance," says George Collins, assistant to the president of Pennsylvania Salt Manufacturing Co., "between the insatiable demand of market research people for all conceivable details and the time company statisticians have to spend compiling figures requested on census questionnaires."

From Ed Dunn, senior statistician at Allied Chemical & Dye Corp.: "There is a tendency for the government to ask for everything; and this raises the question of whether many of the statistics requested are worth the time and expense required in their compilation."

In an effort to shunt off this kind of criticism, the bureau worked with industry representatives last year—seeking to determine just what is needed in the way of information. Bureau officials point out, however, that by the very nature of its purpose a census is bound to be exhaustive.

Chances are good, however, that industry will get the new set of statistics it needs next year. And while most chemical executives may never really scrutinize every page of the formidable volumes published by the Bureau of the Census, they will all agree on what they are. They're indispensable.

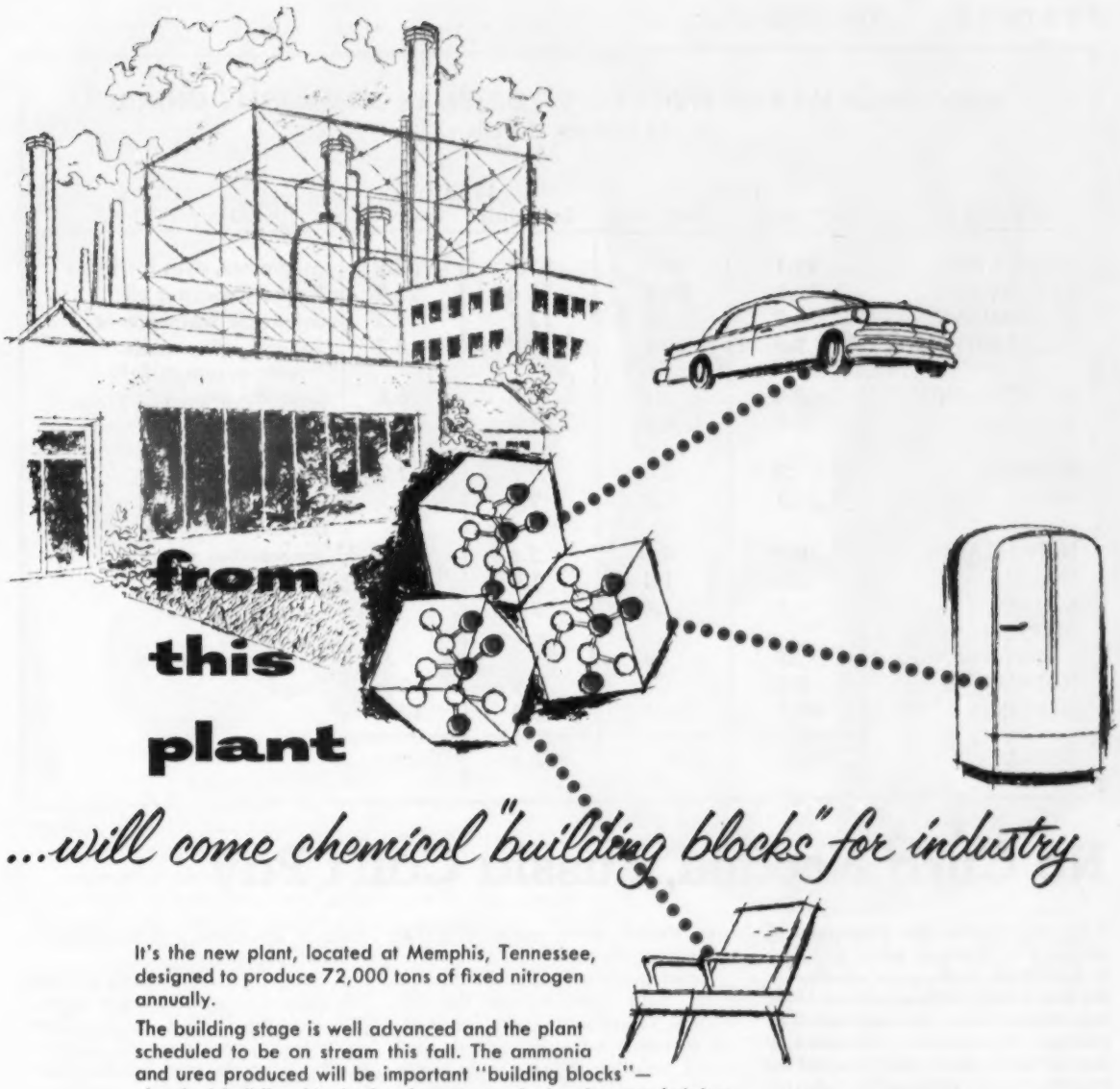
* In the "4" and "9" years—covering the "3" and "8" years.

Set for Private Support

Privately financed atomic energy plants will compete successfully with conventional power plants within five to ten years. That's the contention Francis McCune, general manager of General Electric Co.'s atomic products division, made last week in Washington at a gathering of the Atomic Industrial Forum. Reactors best suited for "earliest and most effective competition":

- A light water-moderated and -cooled boiling reactor.
- A graphite-moderated, water-cooled reactor.

The first type will be able to produce electricity for 0.67 of one cent per kilowatt hour; the latter, for 0.68 of one cent—compared with a cost of 0.69 of one cent for a conventional coal burning plant.



...will come chemical "building blocks" for industry

It's the new plant, located at Memphis, Tennessee, designed to produce 72,000 tons of fixed nitrogen annually.

The building stage is well advanced and the plant scheduled to be on stream this fall. The ammonia and urea produced will be important "building blocks"—chemical building blocks for the new synthetics that are helping to raise America's living standard to new heights.

If you manufacture any of the following products from ammonia or urea, Grace Chemical will be a new, reliable source of raw material supply:

PHARMACEUTICALS: Penicillin • Hypnotics • Streptomycin • Tooth Pastes • Sedatives • Disinfectants
TEXTILES: Urea formaldehyde resins • Fibers • Mordant • Color intensifier • Fade inhibitor • Dyestuffs
EXPLOSIVES: Military and Industrial • Stabilizer
REFRIGERATION: Deep freezing • Petroleum refining • Foods • Fur storage • Ice cream • Brewing
RUBBER: Latex stabilizer • Vulcanizing accelerator • Specific properties
PETROLEUM: Refrigerant • Isomer separation • Anticorrosive
AGRICULTURAL CHEMICALS: Fertilizers • Animal Feeds

Build your plans now for using these chemical building blocks from Grace. Our highly-trained Technical Service group will be pleased to offer suggestions or help with your particular problems.

A WORLD OF EXPERIENCE

GRACE CHEMICAL COMPANY

HANOVER SQUARE • NEW YORK 5, NEW YORK

Here's What the Free World has EXPORTED to COMMUNIST CHINA
(In Millions of Dollars)

COUNTRY	1952 1st. Half	1952 2nd. Half	1953 1st. Half	1953 2nd. Half	CHEMICAL COMMODITIES
HONG KONG	29.1	61.9	63.7	30.9	Medicines, dyes fertilizer
CEYLON	12.5	13.5	25.0	25.9	Rubber, coconut oil
W. GERMANY	.2	2.6	13.7	11.3	Scientific instruments
GREAT BRITAIN	1.9	10.9	8.7	8.8	Sodium compounds, ammonium sulfate
SWITZERLAND	2.5	3.5	10.0	5.5	Coal tar dyes, indigo
FINLAND	.1	6.5	1.0	4.4	Paper, cellulose, copper semimanufactures
FRANCE	.9	2.4	9.7	2.7	Pharmaceuticals
JAPAN	.3	.2	2.3	2.2	Seaweed, superphosphates, medicines
NETHERLANDS	0.0	0.0	2.6	1.3	Ammonium sulfate
ITALY	2.1	1.5	3.9	.8	Fertilizer
SWEDEN	.2	.4	2.3	.4	Paper
BELGIUM-LUXEMBOURG	.3	.3	1.3	.1	Ammonium sulfate
NORWAY	0.0	1.7	.9	0.0	Paper
OTHERS	62.7	38.3	13.8	13.3	
TOTAL	112.8	143.7	158.9	107.6	

No Curb Needed, Russia Can't Pay

A far cry from the dire predictions of certain U.S. senators, major increases in East-West trade won't develop in the near future—with or without trade restrictions. That's the conclusion of Foreign Operations Administrator Harold Stassen in his fourth report on East-West trade delivered to Congress last week.

That's glum news, if true, for some chemical exporters, who have been hoping that the relaxation of Allied controls on strategic exports to the Soviet bloc would boost sales behind the Iron Curtain. Conscious of the steady Communist demand for free-world chemicals in recent years, some "world-minded" companies have openly looked forward to the day when certain chemicals would be lifted from the embargo list. Red China (which always has imported chemicals when it could, *see table*) was regarded as a potentially choice area for marketeers.

But now the FOA chief insists that weakened controls won't strengthen trade for the simple reason that Communist countries today don't possess either money or goods to pay for increased imports. In fact, they may have trouble even maintaining the present import rate.

Soviet payment difficulties, Stassen holds, stem directly from the traditional Communist policy of seeking economic self-sufficiency through forced industrialization. Such a system consumes such a large part of a country's resources for investment (much of it uneconomic from a capitalist point of view), that there's little left for purchases abroad.

Hint of Change: There were signs, after Stalin's death, that Russian economic policies might be modified by the pressure from consumers for a higher standard of living. Moscow leaders signed a sheaf of trade pacts with free-world countries, entered into more agreements than at any time since the end of World War II.

But like hunting licenses, trade agreements merely authorize, and don't guarantee an exchange of goods. The governments simply agree to permit export and import of the goods listed—*if* contracts can be arranged between companies within the states. If for any reason (the goods are unavailable, demand is not forthcoming, or the price is too high) they don't develop, the whole pact becomes just so much paper.

Greece is a good example of what can happen to a country that signs a pact with the U.S.S.R. So far, Greek consumers have received only a trickle of goods from Russia under the $20-million trade agreement signed last year, and delegates to the recent East-West trade conference in Geneva returned home convinced that the Communists wanted to buy—but just couldn't afford it.

Against such a stark economic background, relaxation of Allied controls on strategic goods won't mean much. And it's FOA's considered opinion that the slackening of controls will be marginal and highly selective, at first anyway. Allied experts in Paris have been fine-tooth-combing embargo lists for over a month now, won't be finished until late June. Some items may be taken off the lists entirely, others downgraded in importance, but "any chemical considered useful, directly or indirectly in war industries" will remain ineligible for export to Iron Curtain countries.

Buttressing his prophesy with one

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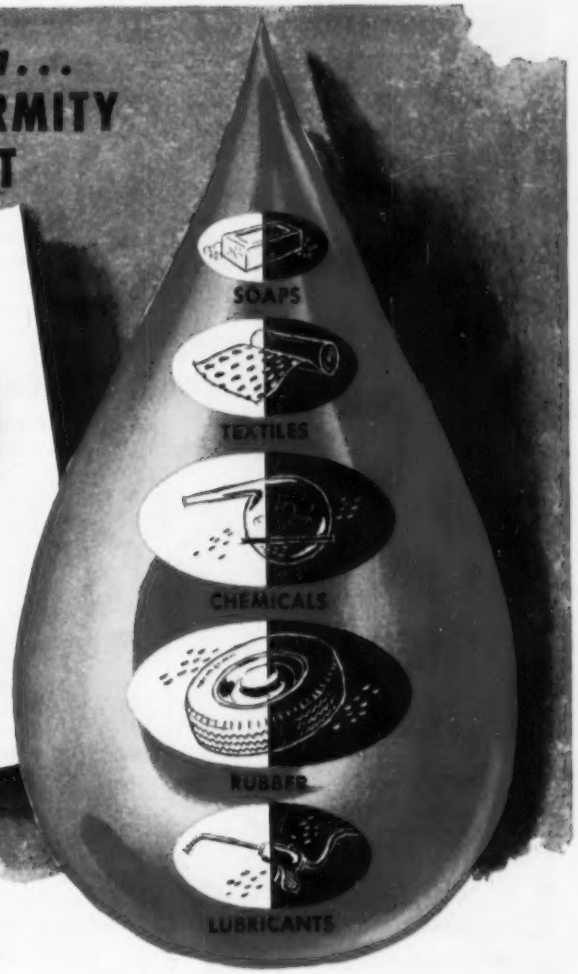

Typical of the strictly controlled processes by which all of Swift's Industrial Oils are produced, is a special low temperature solvent treatment used to permit selective extraction of color bodies from Swift's Red Oils. This process lends unique qualities and uniformity of specifications to Swift's Red Oils and is one of the reasons why they are so widely depended upon for unusual, as well as commonplace uses:

If you are producing a product or have an application where uniform quality and "application" purity demand an extremely clear, distilled fractionated fatty acid, you should investigate Swift's OLEIC ACID No. 905. It has the versatility and prime characteristics of a high quality red oil—but with a very low titer, high acid number and exceptional clarity and color stability.

Backed by a nationwide network of warehouse and storage facilities, Swift's Red Oils are readily available, many from stock. Why not write for further details—Today!

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final set of figures, Stassen points to the slump in East-West trade in recent years. Despite the Kremlin's trade offensive, free-world exports to the Soviet bloc have dipped from $1,685 million in 1951 to $1,350 million in 1953.

There's every indication, therefore, concludes Stassen, that even if Russia wants to increase its trade with the West, there won't be a big upsurge in orders this year or next.

Same Sad Tune

The great trek from college starts again this month, but if Engineering Manpower Commission statistics are correct, industry faces another squeeze on its quota of scientific and engineering manpower. The reason's twofold: the low birth rate of the 1930s, and the continuing demand of the Armed Forces on college graduates.

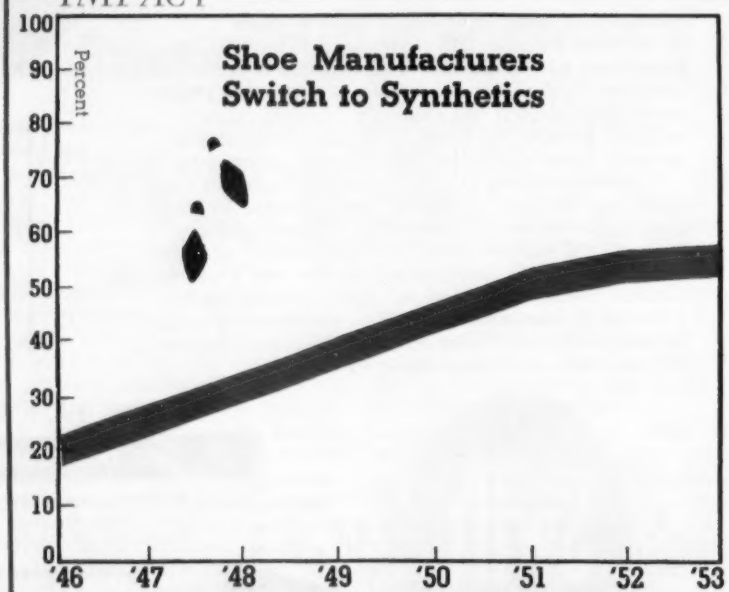
Citing statistics to prove its point —that young scientists and engineers are carrying too great a share of the load of national defense—EMC says that "men trained in science make up nearly 3% of today's Service complement, although they comprise a scant 1% of the nation's labor force."

Backing up EMC's contention is Walter Kirner, program director for chemistry of the National Science Foundation. Says Kirner: "It is fortunate that we are not involved in a serious defense emergency now." Then Selective Service "would be forced to acknowledge that the low birth rate in the '30s has imposed a serious handicap on the chemical industry.

Cutbacks in industrial activity and reduction in federal research budgets haven't made much of a change in the situation either. "Recession notwithstanding," states one Eastern personnel director, "the bidding for engineering graduates this year has been as brisk as we've ever seen it."

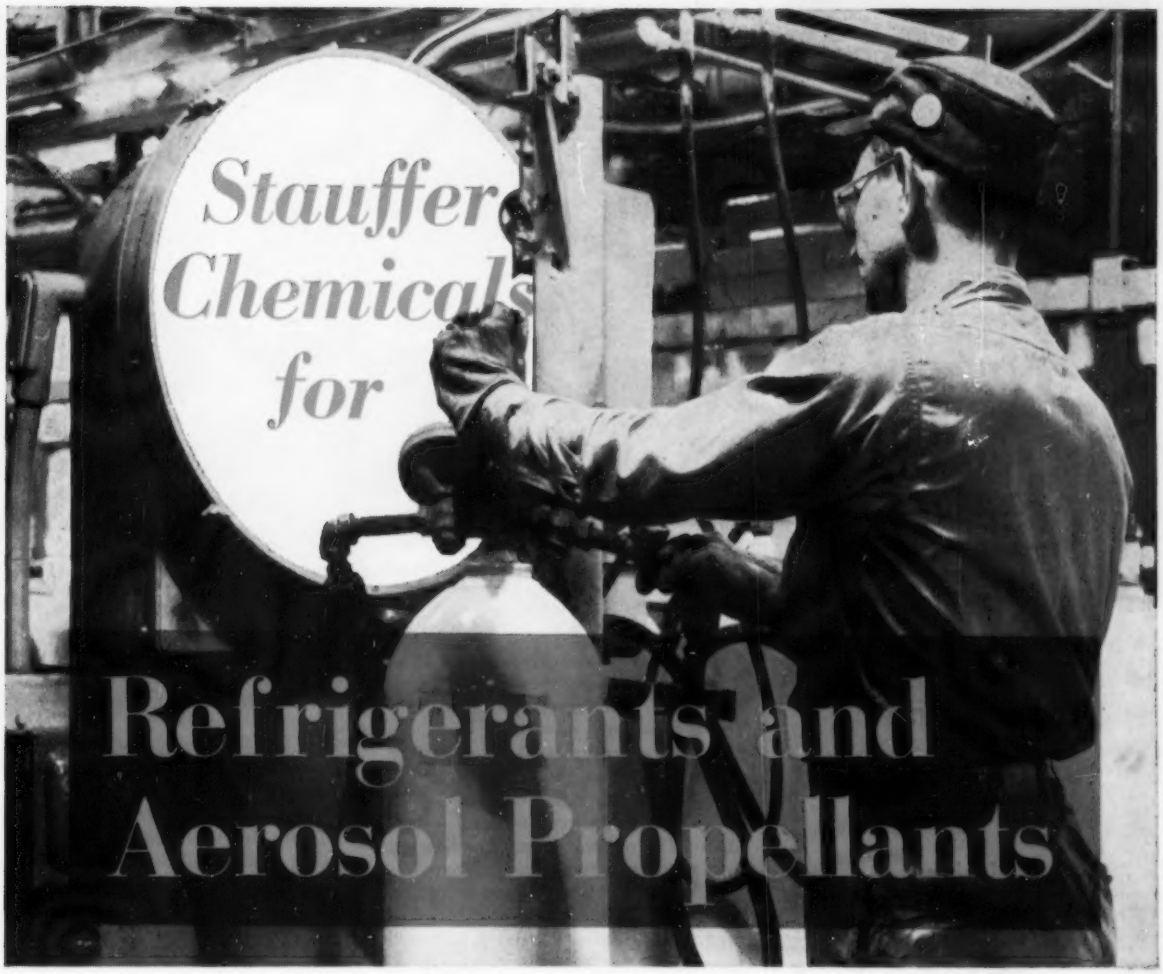
"The best guess the colleges can give us now," continues a Midwestern placement official, "is that the situation will clear up by 1960." But that's scant encouragement to the employer concerned about the need for new blood to maintain the growth of his company.

IMPACT



. . . Open Markets for Chemicals

SHOE OUTPUT hasn't jumped much in the past decade—hovers around 500 million pairs/year in the U.S., but the trend toward use of synthetic soles represents a boost to chemical manufacturers supplying butadiene-styrene copolymers, zinc oxide, hydrated calcium silicate, benzothiosol disulfide, and stearic acid. Shoe industry spokesmen expect that the use of synthetic soles, has reached a plateau, but chemical producers are hopeful that it's a temporary lull.



The manufacturing of refrigerants and aerosol propellants requires a much purer grade of carbon tetrachloride than does any other industrial use. Stauffer has been supplying the necessary high quality product since this industry's inception.

To keep pace with increasing demands, Stauffer has recently completed a new plant in which "Tet" is manufactured by chlorinating hydrocarbon gas. As a result, Stauffer now produces carbon tetrachloride at two locations, using completely different raw materials. This versatility is a distinct advantage, particularly when assured supplies are a potential problem.

Serving industry since 1885, Stauffer now supplies chemicals produced at 38 plants, coast to coast.

Stauffer Products:

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Chlorine
Citric Acid
*Copperas**
Cream of Tartar
*Ferric Sulphate**
Fire Extinguisher Fluid
Insecticides and Fungicides
*Muriatic Acid**
*Nitric Acid**
Perchlorethylene
Potassium Nitrate
Rochelle Salt
Silicon Tetrachloride
Sodium Hydrosulphide
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Sulphuric Acid
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Tartaric Acid
Titanium Tetrachloride
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*"Zol" Dry Cleaning Fluid**
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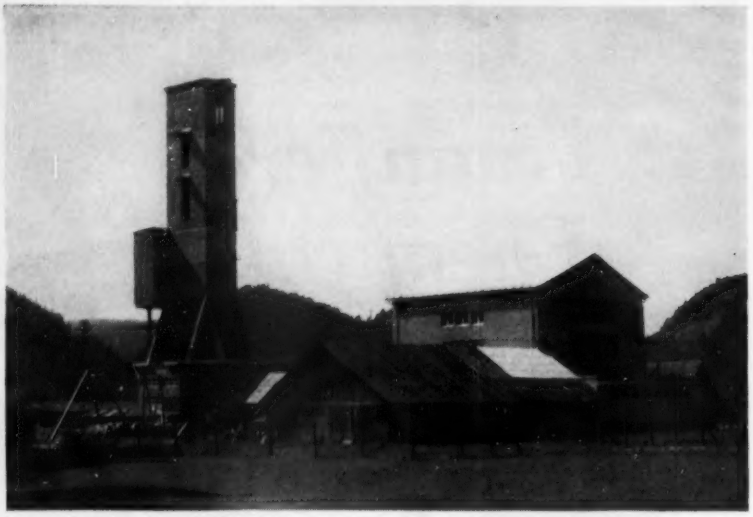


YUGOSLAVIAN LIGNITE: Now produced at Valenge . . . 1,900 tons per day.

FOREIGN . . . . . .

Lignite/Yugoslavia: Thanks to a U.N. Technical Assistance visit to Yugoslavia last year, lignite production today is booming, promises to become a major export item soon. The picture above (taken at the Valenge lignite mine, some 50 miles east of Ljubljana) shows the headframe of a new shaft, 350 meters deep, which went into operation recently. Valenge has a daily output of 1,900 tons of lignite.

•

Japan, Red China Trade: Latest development in the growing list of Japanese, Chinese trade pacts is one concluded between Maiwa Industry Co. and the Nichici Shoji Trading Co., Tokyo, and the San-i Industry Corp., China. Approved by the Ministry of International Trade and Industry, the agreement calls for import of 3,000 tons of soya beans from China in exchange for 12,000 tons of superphosphates and 1,000 tons of caustic soda.

•

Sulfur/Poland: Polish geologists, after several years' search, claim to have discovered the largest sulfur deposits ever uncovered in Poland—"a deposit bigger than the Sicilian and Spanish sulfur deposits combined." Development work will start this year, and it's estimated that before 1956, Poland will be able not only to supply its own domestic requirements, but also to have a considerable amount of sulfur available for export.

•

Tuberculin/Israel: Assisted immeasurably by U.S. backing and know-how, Israel is ready to discontinue imports of tuberculin. Reason: the Ministry of Agriculture's Veterinary Institute in Tel-Aviv is producing tuberculin in quantities exceeding by about 50% the country's requirements. Cost of the facilities: $30,000.

•

Sulfur/Iraq: A new American firm—Maniak Questanzvment—has applied to the Iraqi government for a concession to begin sulfur exploration. Negotiations between Baghdad officials and the Texas Gulf Sulphur Co. (also for sulfur exploration in Iraq) have dragged to a standstill.

•

Chrome Salts/Southern Rhodesia: Southern Rhodesia's biggest chrome refinery at Gwelo (controlled by the British South Africa Co., John Brown and the Anglo-American Corp.) will expand its facilities to include chrome salts and ferro-tungsten production. Now exporting ferro-chrome in quantity to the U.K., U.S. South Africa and Germany, the company expects to double its sales within three years.

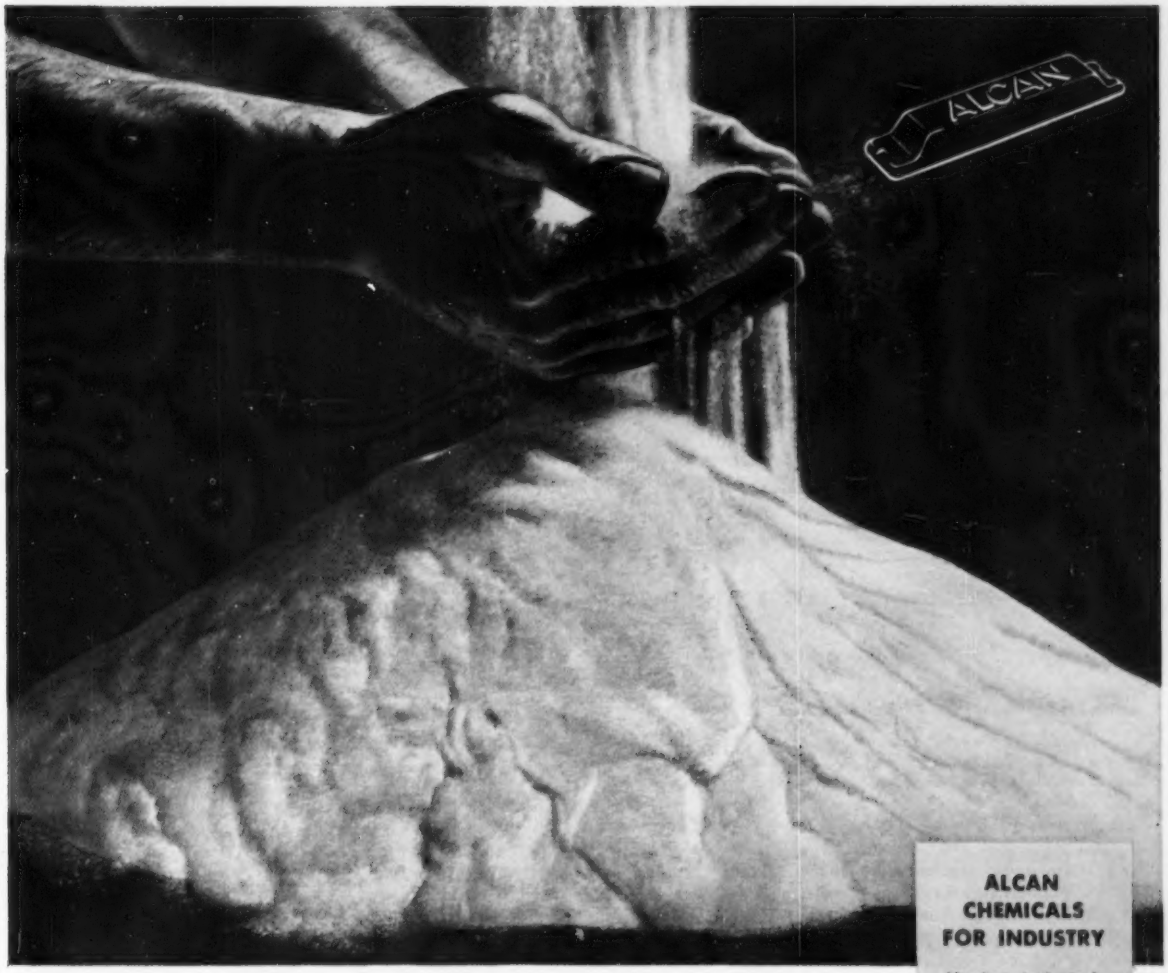
KEY CHANGES . . .

Emery I. Valko, to director of research, Onyx Oil & Chemical Co., Jersey City, N. J.

Gilbert Leigh, to assistant director of Research and Development, Colgate-Palmolive Co., Jersey City, N. J.

George J. Wachholz, to controller, and **Edward R. Newcomb** to vice-president, Export Sales, International Div., Minnesota Mining & Manufacturing Co., St. Paul.

Bruno Vassel, to supervisor of research in organic chemistry, International Minerals & Chemical Corp., Chicago.



What's Alcan doing *in Chemicals?*

AS THE PRODUCER of one-fourth of the free world's aluminum, Alcan (Aluminum Company of Canada, Ltd.) is concerned with chemicals in a big way. With a large range of metallic and non-metallic products, evolving from the production of aluminum, Alcan is in a position to supply chemicals to industry for a variety of uses.

These Alcan Chemicals *have* to be good—and you can depend on it—they are. Co-operating in their production are Alcan's sister companies. Each of these affiliates specializes in its own field of endeavor:

- **Laboratory research, and the exploring and surveying of material resources throughout the free world;**
- **Mining and processing of raw materials in many different countries;**
- **Development of up-to-date shipping methods for the protection and speedy delivery of the products.**

One of Alcan's sister companies, Aluminum Import Corporation, distributes Alcan Chemicals in the United States. The *Import* office near you will be glad to help you with your special chemical requirements.

ALCAN CHEMICALS FOR INDUSTRY

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Alumina, Calcined
Alumina Hydrate
Aluminum Chloride, Anhydrous
Aluminum Fluoride
Aluminum Sulphate
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Chlorine, Liquid
Cryolite, Artificial
Fluorspar
Lime
Magnesia
Magnesium Chloride, Anhydrous
Sodium Fluoride
Sulphuric Acid

ALCAN Aluminum Chemicals

ALUMINUM IMPORT CORPORATION
One of the **ALUMINIUM LIMITED** group of Companies
Offices or Agents in 40 cities
Cable: ALIMPORT
630 Fifth Avenue, New York 20
20 North Wacker Drive, Chicago 6
422 Terminal Tower, Cleveland 13
611 Wilshire Boulevard, Los Angeles 14

"QUAINT" VS NEW: Label sprucer Francis catches up 40 years in nine months.

Quaint No Longer

"The time is past when the buyer is satisfied with just any old package." With that simple statement, William "Buck" Francis, general sales manager, Western Div., American Potash & Chemical Corp. nailed up the order for a "New Look" on the firm's packages. And by the move, the company launched the latest in a series of improvements that began in July, '52.

Motivating the "New Look" on AP&C's packages is the surge of revitalized competition. And, silent though labels are, chemical companies have been finding that they can be highly eloquent salesmen. Only recently, Monsanto ranked packaging on equal footing with customer service—just as important as price or quality (*CW, April 17, p. 103*). And Solvay, too, with its eye on the customer, lately redesigned its labeling from a sales-snaring viewpoint (*CW, Nov. 7, '53, p. 54*).

Explains Francis: "Everyone knows the chemical industry is entering a highly competitive situation. We felt that we should get everything in the best possible shape to meet this condition."

Scuttle the Old: In readying AP&C to meet it, management decided that its labels needed a thorough facelifting. Unchanged since their introduction 40 years ago, the packaging was, by modern standards, drab, dated and confusing.

According to Francis, the "Quaint Look" stemmed from two factors: a staid company philosophy; and "the natural tendency of people with science-oriented" minds to overlook the package, consider redesign as a promotional antic. The result was a package that contained, but didn't promote.

Remedy for AP&C's ailing packages was a comprehensive program of redesign.

The first step called for determining the basic requirements of a bag label. Good "selling" design, feels Francis must fulfill these criteria:

- Contents should be conspicuously identified with all necessary warnings.
- The trademark should be effectively and prominently displayed.
- Name and address of the manufacturer must be on the label.

With an idea of what the package should do, company officials next went after the information needed for the job. To get basic working suggestions, AP&C queried:

- Customers, to determine what they wanted on a label;
- Its salesmen, to get their idea of a convenient, salable package.
- Its technical service and traffic departments, for information on legal requirements for shipping.

At this point, several container manufacturers were called in, fed the assembled information. Some nine months and many tries later, the final design was approved and production launched.

Colorama: As a result of the combined effort, AP&C now sports a new package for its line of salt cake, borax, soda ash, and fertilizers. The "New Look" for the potash company's products places heavy emphasis on:

- Attraction. Color is strategically used. Navy blue or forest green hues on the bag ends catch the eye. On the old package, little use was made of color.
- Advertising. The company trademarks "Trona" and "Three Elephant" are featured prominently on the color-capped ends and on the sides of the sack. The old confusing center emblem was eliminated; looking at it, a factory worker might think he was handling any one of salt cake, ash, or potash materials.
- Service. Package contents are now clearly labeled in the center stripe. And, the end caps cleverly double as a color code. Most AP&C's customers take two different products. By carefully assigning colors to products, the firm can supply its customers with color-coded bags. For example: glass and enamel makers buy soda ash (blue) and borax (green); chemical jobbers purchase chiefly soda ash (blue) and salt cake (green).

All AP&C's mineral products are now in contemporary dress. Under the "Trona" label, the concern sells 11 products; under the "Three Elephant" tag, its 10 boron chemicals. Some 75-80% of the company's sales are in 100-lb. bags and the remainder in 350-lb. drums.

Just how much the new look for AP&C's minerals will spurt the sales curve is the poser. But favorable customer reaction indicates to the firm that it has succeeded in its task of making the package a vigorous sales agent.

Trucking Taxes

For the privilege of using improved highways, the trucking industry can expect increased taxes next year. Adding impetus to the trend to stiffer tariffs are these two factors:

- The record sum Congress allocated as federal aid for road-building. Under the terms of the bill, federal aid increases proportionately with state expenditures.
- A growing realization in many states that their road networks are obsolete.

if it can be bagged...
BAGPAK will bag it better!
Here are just some of the advantages Bagpak Multiwall Bags give you and your customers.
• Lower packaging costs • Reduced freight costs • Better stacking of filled bags • Both filled and empty bags require less storage space • Shipping and storage on Bagpak Disposable Pallets cut unloading costs • Maximum protection against sifting, contamination, infestation, dampness • Full measure always emptied • Minimum dust hazard • Advertising message can be printed on face of bags
Bagpak production and quality are backed by the tremendous countrywide facilities and resources of the International Paper Company. For complete information and suggestions as to how you can package and ship your product more profitably, write: Dept. K20
International Paper Company, Bagpak Division
220 E. 42 Street, New York 17
International Paper COMPANY
BAGPAK DIVISION

Anxious to make full use of the money available from federal funds, state tax authorities are studying methods to raise additional dollars. Most attractive methods appear to be increased fuel levies, weight-distance taxes, and/or bond issues. Here is the picture at present:

- Connecticut. A bond issue or a 2¢/gal. tax boost on gasoline to finance construction of $42 million worth of highways.
- Iowa. Considering a fuel tax boost.
- Massachusetts. State legislature considering a $150-million bond issue for road modernization.
- Mississippi. State Highway Commission will issue $18.2 million in gasoline tax bonds to match federal funds.
- Montana. Looking over fuel tariffs and additional truck taxes.
- Nebraska. Currently studying ways of increasing revenues to match federal funds.
- New Jersey. Contemplating a raise in the gasoline tax and a weight-distance levy.
- N. Dakota. Short about $11 million to match government aid, the state may jump the gasoline tax.
- Vermont. State officials have suggested a $5-million bond issue for highway construction.
- Wisconsin. Eyeing an increase in the gasoline tax as a means of qualifying for maximum federal aid.

New River Movement

Mississippi River freight history added a chapter a few days ago when the first firm specializing exclusively in river freight consolidating service opened for business.

The new firm, River Forwarders, Inc., with headquarters in St. Louis, is a wholly owned subsidiary of Waterways Terminals Corp., which with associated firms, has operated river, rail and truck terminals in major Mississippi Valley cities for several years.

River Forwarders, according to the certificate of operations granted by the Interstate Commerce Commission, may consolidate both carload and less-than-carload lot shipments into barge loads. The consolidating rights govern shipments to and from all points in all states bordering the Mississippi, plus Indiana and Texas.

Significance of the new service to shippers: cargos of virtually any size can now be consolidated onto the barges of any one of a dozen competing lines. Claimed advantages: greater flexibility and speed of handling water shipments. One stipulation: all shipments must move partly by river barge.

Indicative of the importance of the Mississippi River to freight traffic is the steady rise in amount of freight moved. Last year, for the first time, traffic on the middle Mississippi passed the million-tons-a-month mark.

For S.3111

Recently, at Tacoma, Wash., the Chamber of Commerce took a stand on Congressional legislation concerning regulation of drybulk carriers on inland waterways. The Chamber's Board of Directors voted to support the bill, notified the Congressional delegation to that effect.

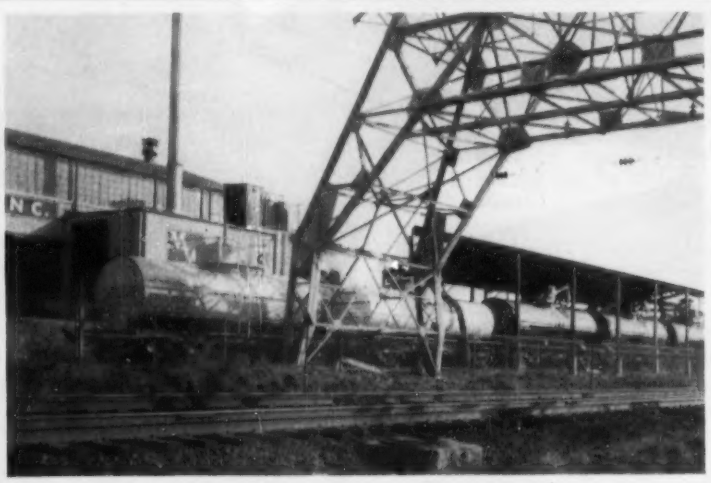
The legislation, S.3111 *(CW, April 10, p. 82)*, would subject certain inland waterways carriers to Interstate Commerce Commission regulation, benefit competing forms of transportation now operating under ICC rules. A joint report of the Traffic & Transportation Committee and the Marine Affairs & Foreign Trade Committee favors passage of the bill.

Truck Hikes

On the whole, chemical shipments cost more this week. Idaho has granted truckers affiliated with the Rocky Mountain Tariff Bureau a 15% increase in intrastate freight rates. The new boost supersedes an earlier 12% hike for some Southwestern Idaho runs.

- Michigan's State Public Service Commission has authorized a 10% rate raise for common carriers in the Lower Peninsula. All commodities except those with a volume-minimum weight of 20 tons are affected.
- Mississippi's Public Service Commission has been refused an injunction blocking the Interstate Commerce Commission from granting a 15% hike in shipping rates, rates applying to fertilizer, building materials, pulpwood, cottonseed and its products, and soybeans and its products.
- But Montana's State Supreme Court has backed up a lower court's ruling that last year's 9% jump in intrastate railroad freight rate was illegal. The state court found the rate increase unnecessary.
- Nebraska plans revision of its explosives-hauling regulations. Up for consideration at a hearing in Lincoln on June 21 will be proposals to require explosive-loaded trucks to trail other vehicles by at least ¼ mile, and to carry fire extinguishers, asbestos blankets and gloves, and special tire removal equipment.

The contemplated rules are similar to those of the Interstate Commerce Commission.

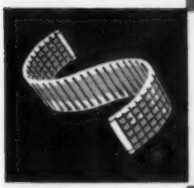


Production-Line Protection

ITS NEW railroad siding nearing completion, Metalweld, Inc., Philadelphia, is gearing up to handle tank lining and coating operations on a production basis. In the 40x 120-ft. shed covering the siding at its year-old Scotts Lane plant, the company has installed ventilating, air compressor, sandblasting, steam and hot-air equipment capable of curing tank linings at 600 F.

If Metalweld's experience is universal, the tank lining business in chemical and related fields is on the upswing. The company claims its tank-car lining work this year has jumped more than 500% above last year's level.

Coffee Maker



Flexible Watch Bands

Camera

Phosphoric Acid

makes this possible

Another example of how industry uses VICTOR products

Electro-polishing with phosphoric acid is one of the main reasons for the rapidly growing popularity of stainless steel flatware. Nothing else could economically give "stainless" its lustrous, gleaming finish except an electro-polishing bath containing phosphoric acid.

Chemical or electro-polishing baths containing Victor phosphoric acid are fast replacing costly mechanical buffing for "stainless," aluminum, copper, brass and other metals. Intricate metal shapes, formerly considered "unbuffable" now are given a bright, attractive finish (inside and out) . . . quickly and at low cost. Here's another example of why industry finds "It pays to see Victor."

Looking for product improvement?

For many years, Victor has been helping industry to develop new sales appeals and to reduce costs through the use of Victor products. If you have a product or process that a phosphate, formate or oxalate might help, it will pay you to see Victor Chemical Works, 141 W. Jackson Blvd., Chicago 4, Ill.
In the West: A. R. Maas, South Gate, Calif.

VICTOR

Dependable Name in Chemicals for 56 Years

PHOSPHORUS • PHOSPHORIC ACIDS • PHOSPHORUS CHLORIDES • PHOSPHATES • FORMATES • OXALATES • ORGANOPHOSPHORUS COMPOUNDS

to all
MANAGEMENT
RESEARCH and
PRODUCTION
EXECUTIVES
get this
new, revised
valuable
booklet
...and you'll get 40 pages
of information and data
on the latest and most
effective means of solving
processing problems
involving sequestration of
iron, calcium and other
troublesome trace metals.
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ROLLING DRUMS: They'll move faster, more smoothly under AOCS' new . . .

Stamp of Approval

An action taken recently by a group of analytical chemists is bound to have long and far-reaching effects in the trading of one of the most common of chemical commodities. Only a few days ago the American Oil Chemists Society removed the long-standing acetin and dichromate procedures for glycerine determination from its list of Official Methods.

This leaves only the third—the sodium periodate method of glycerine analysis—officially recognized in the AOCS book.

Commenting upon this change, AOCS explains that the principal reason for the step was the elimination of confusion.

Further, the society's action is expected to speed adoption, for trading purposes, of the one method that its Glycerine Analysis Committee considers to be superior. Reason: this procedure, the sodium periodate method, while suitable for glycerine analysis in general, is specific for determination of the compound in undistilled crude glycerines—a major commodity in commercial transactions.

Better, Faster: Specific advantages of the sodium periodate method:

- It can be applied to samples of glycerine content ranging from 0.1% to 100%. (In contrast, the acetin method is not considered suitable for less-than-60% glycerine content.)
- Similar materials, trimethylene glycol and propylene glycol, do not analyze as glycerine. (In the acetin method, they do.)
- Glycols and polyglycols, found in glycerine foots, do not interfere with the analysis.
- The method is simpler, more accurate and five times as fast as the acetin procedure.

Worldwide: Behind the AOCS decision are stacked years of worldwide analytical investigations. Laboratories in France, Germany, Holland, Sweden and the United Kingdom, as well as in this country, have participated in collaborative analyses.

And while foreign groups have not yet followed the AOCS action, their participation may be interpreted to mean early universal acceptance of the new standard.

Such action would switch a standard that dates back to 1911. At that time a committee of representatives from the U.S., England and several other European countries adopted the acetin method as standard.

Trade Parade: Despite the change in standard, buyers and sellers of glycerine are not expected to follow suit overnight. Reason: common current practice in drawing contracts is to specify the acetin method.

However, with the leading technical body in the oil field putting its stamp of approval on a different analytical procedure, an increasing number of contracts will probably call for determination of glycerine content by the periodate method.

During the period of transition, there will doubtless be considerable give and take among traders. One cause for differences: generally, the

You may be throwing away your profits...

with out-of-date instruments

The tremendous progress in instrumentation that has come out of Honeywell's intensive development program has made many older instruments obsolete. Modernizing your plant instruments, to take full advantage of this progress, can bring you a number of specific benefits.

You can save labor . . . by utilizing centralized control, automatic time-cycle systems and other concepts that save steps and reduce routine man-hour expenditures. You can cut maintenance . . . by installing instrumentation that is not only easier to service, but also requires the absolute minimum of attention. You can reduce rejects . . . because modern controls can maintain the tighter processing tolerances needed for today's exacting specifications. You can improve product quality. And you can make your cost accounting more accurate than ever before.

Replacing old instruments with new can well prove one of the best ways to invest your modernization appropriation. A Honeywell application engineer will be glad to survey your present plant instrumentation. Call him today . . . he's as near as your phone.

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BROWN INSTRUMENTS
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SAFE AND EASY TO HANDLE!
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- **HYDROFLUORIC ACID**
- **FERRIC CHLORIDE**
- **CORROSIVE LIQUIDS**

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ICC-43A SPEC.
Tare Weight—34 lbs.
13 gallon capacity

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Made with
Natural, Neoprene,
Butyl or other Synthetic
Rubber Linings

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Threaded or Stopper type closures

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periodate method will yield higher glycerine percentage results. A variation of 1% on a 20,000-lb. lot, for example, might translate to a difference of perhaps $40 in the price of the lot.

For a time glycerine traders may haggle over these apparent price differences. But this talking point in glycerine purchases will likely disappear as businessmen learn to appreciate and use the new analysis.

•

For Your Reference File: Methyl bromide fumigant and its uses—a brochure from the Agricultural Chemical Div. of American Potash & Chemical Corp., Los Angeles.

• "Koresin" rubber tackifier—a technical bulletin tabulating properties and applications. Available from Antara Chemicals, New York.

• Outdoor advertising sign paints—two technical data sheets on "Logoquant QV74 and Q75." Published by Logo, Inc., Chicago.

• "Directory of Central Atlantic States Manufacturers." Manufacturers in Maryland, Delaware, Virginia, West Virginia, and District of Columbia are listed by product and company. T. K. Sanderson Organization, Baltimore.

• "Calcium Chloride in Concrete"—a 40-page booklet containing technical information on uses, condition, and specifications. Calcium Chloride Institute, Washington 6, D.C.

•

Resin Nylon: Looking to avoid confu-

Sun, Sand and Sales

Question: How can you get your salesmen to go all out?
Answer: When running a sales contest, let wives share in prize awards.

Over at Schenley Laboratories, they pour on the awards with a flourish. Delighted with swelled sales from previous contests, company officials are plotting the biggest yet.

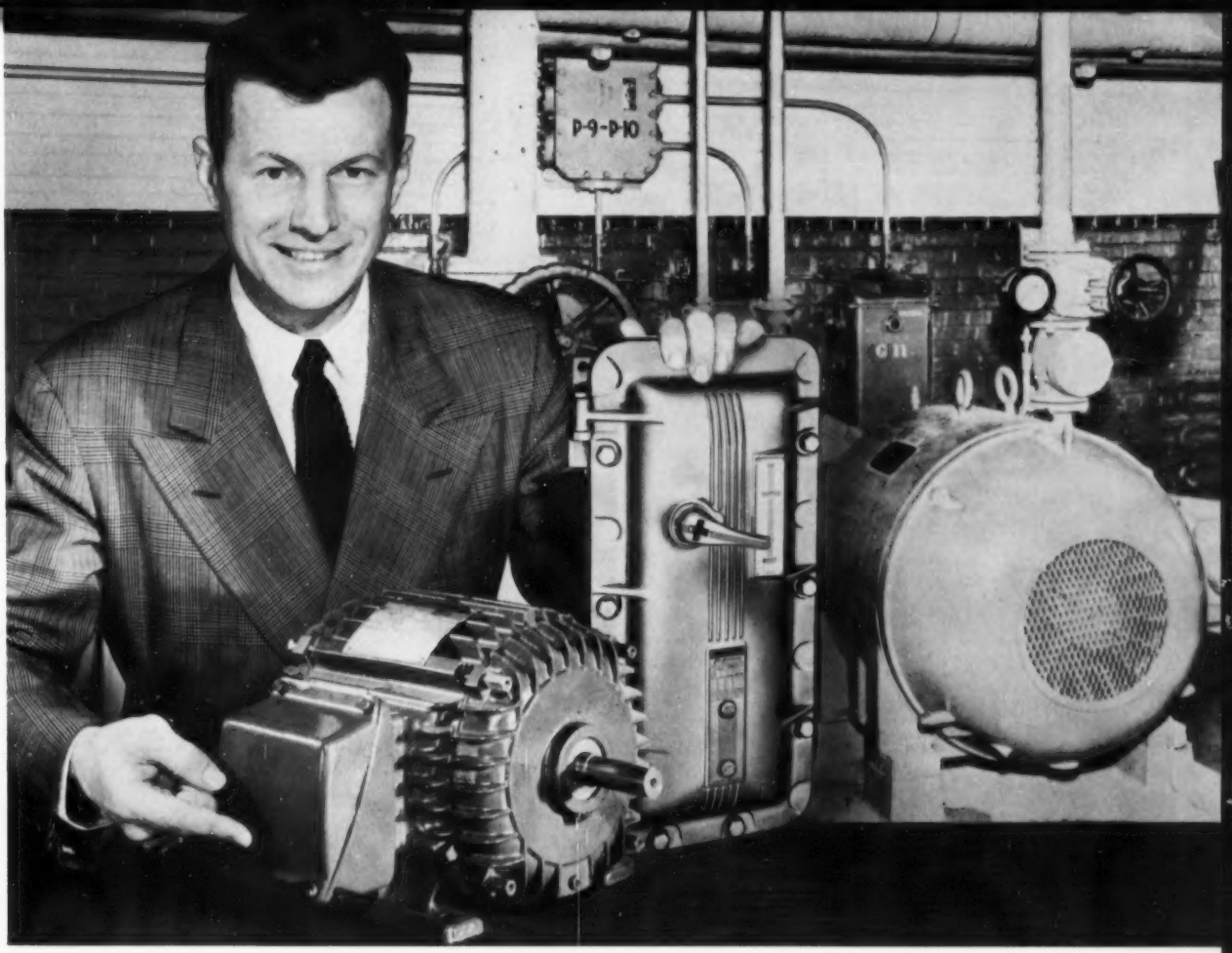
To spur the detail men and their district managers to greater sales for Schenley, the company is luring them with:

• A deluxe, all-expenses-paid vacation in Bermuda for three salesmen and one district manager together with their wives, touched off a gala party in a swank New York nightclub, and

• Secondary awards worth several thousand dollars to 19 others.

By extending the awards to include the winners' wives, Schenley hopes to add incentive on the home front. Just how much influence the salesmen's spouses will have is not strictly measurable, but the firm is positive that there's some.

Although past sales incentive contests have worked well, Schenley's sales v-p., Arthur F. Gormley (*left*) and President R. Blayne McCurry have even greater expectations for this one. In return for the balmy, carefree week in Bermuda, the company hopes for a 30-40% jump in sales.



What you can do to attain round-the-clock production continuity

HERE ARE 4 WAYS WESTINGHOUSE POWER PARTNERS CAN HELP

Motion is basic to all chemical processing. Materials must be moved, mashed, blown, crushed and moved again. Keeping that motion uninterrupted is a mountainous task, but one that can be simplified by using time-proved Life-Line® motors, gearmotors and controls. Here's how:

BETTER PROTECTION—Both inside and out, Life-Line motors, gearmotors and controls are built to take the beating inherent in the chemical industry. They are designed to cope with corrosion, shock and other mechanical hazards, dust, dirt, and outdoor exposure.

FEWER OUTAGES—Records show that Life-Line motors and gearmotors have an average outage rate of one-half that of conventional motors. Balanced design and advanced materials make the difference.

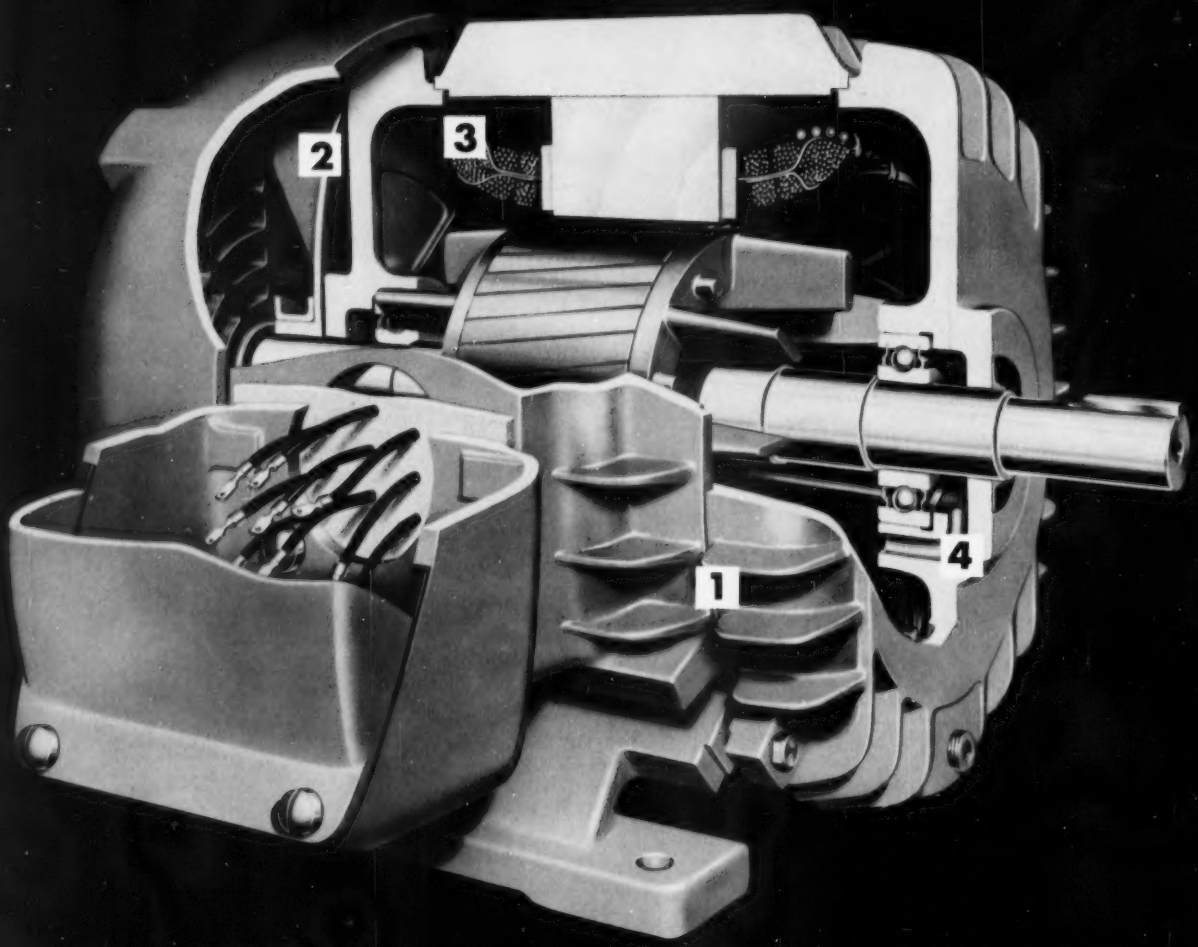
LESS MAINTENANCE—Less production time is lost maintaining Life-Line motors—they require no on-the-job greasing. Less production time is lost maintaining Life-Line controls.

THE MOST COMPLETE LINE—You don't get divided responsibility when you specify Life-Line. Westinghouse builds the most complete line of drives for the chemical industry . . . motors, controls, speed reducers and gearmotors. You can match the right motor, gearing and control to your specific need.

YOU CAN BE **SURE**...IF IT'S Westinghouse

THE NEXT THREE PAGES DISCUSS OTHER REASONS WHY LIFE-LINE MOTORS AND CONTROLS CAN HELP YOUR PRODUCTION CONTINUITY.

MINIMIZE CORROSION...



1. CORROSION-PROOF CAST IRON FRAME AND BRACKETS The housing is the one element that is responsible for protection of the internal parts of the motor. The Life-Line housing provides three-way protection: (1) only fine-grained castings are used, (2) all wall sections are uniformly thick, and (3) all fits are accurate and sealed.

2. CORROSION-PROOF FAN The external cooling fan is a critical member of a totally-enclosed, fan-cooled motor. By producing a sucking action, it draws large quantities of surrounding foreign material to it. This design dictates the use of thin-walled blades that are easy prey to corrosion. Life-Line solved the problem by making the fan of a rugged, chemically inert material—molded glass plastic.

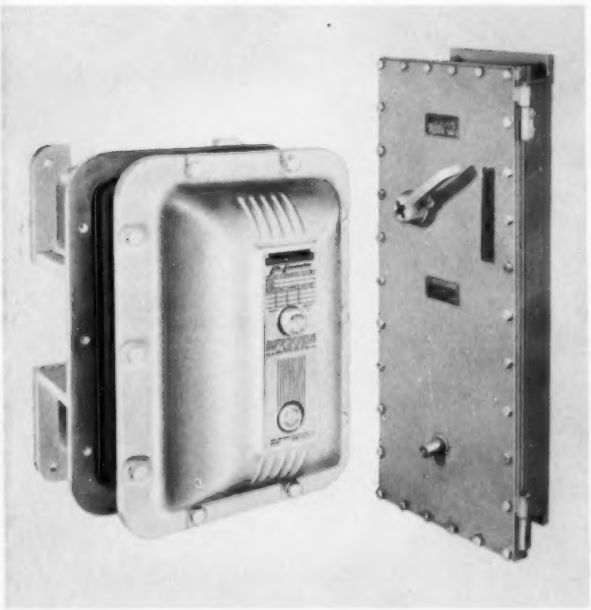
3. FORTIFIED INSULATION SYSTEMS Contaminating vapors can penetrate any totally-enclosed motor and attack the electrical components if they are not properly protected. Life-Line's insulation system makes sure this cannot happen. Only with Life-Line do you get the protection of Bondar conductor insulation combined with Bondite silicone-reinforced stator insulation ...a protective combination unsurpassed by any other motor.

4. AIR BYPASS Every totally-enclosed motor "breathes" as the internal air expands and contracts with change in temperature. Ordinary motors "breathe" along the shaft and through the bearings. Contaminated air enters the bearings and becomes a source of bearing failure. Life-Line eliminates this trouble source by providing an air bypass around the bearings.

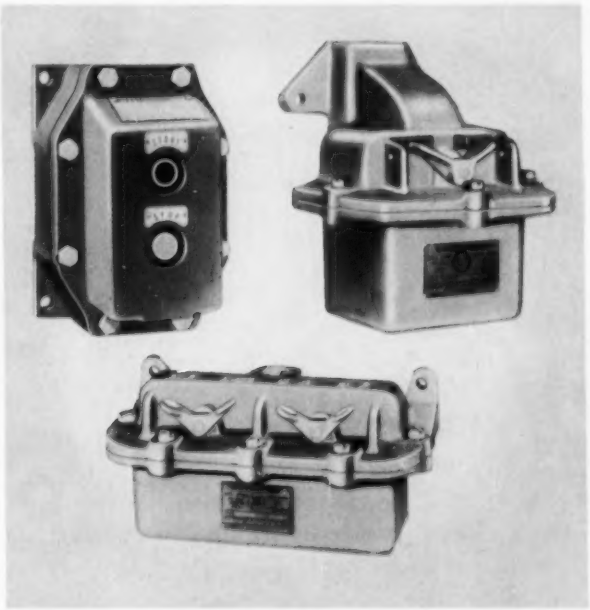
with Life-Line motors, gearmotors and controls

Corrosive solids, liquids, atmospheres, mild chemicals and severe chemicals—all must be reckoned with when applying motors, gearmotors and controls. Westinghouse equipment has been designed to give you maximum protection against the ravages of corrosion.

Life-Line motors, gearmotors and controls are also protected against physical abuse—bumps from passing vehicles—jars from falling objects—shocks from heavy machinery operation. Life-Line "A" motors combine the strength of fine-grained cast iron with the reinforcing of heavy ribs. False operation of contacts under vibration or accidental impact is no problem with the Westinghouse Life-Line Starter . . . the inverted knife-edge bearing is spring loaded and does not depend on gravity for operation.



All types of Westinghouse Controls are available in enclosures especially suited for use in the chemical industry. Linestarters® and combination Linestarters are available in heavy plate or cast-iron enclosures. Oil-immersed starters are available for corrosive and explosive atmosphere applications.



A large variety of Westinghouse Pushbuttons and pilot controls are available with cast-iron enclosures for use in severe operating conditions. Many chemical companies have found it desirable to locate their starters outside the corrosive areas and operate them remotely by these pushbuttons.

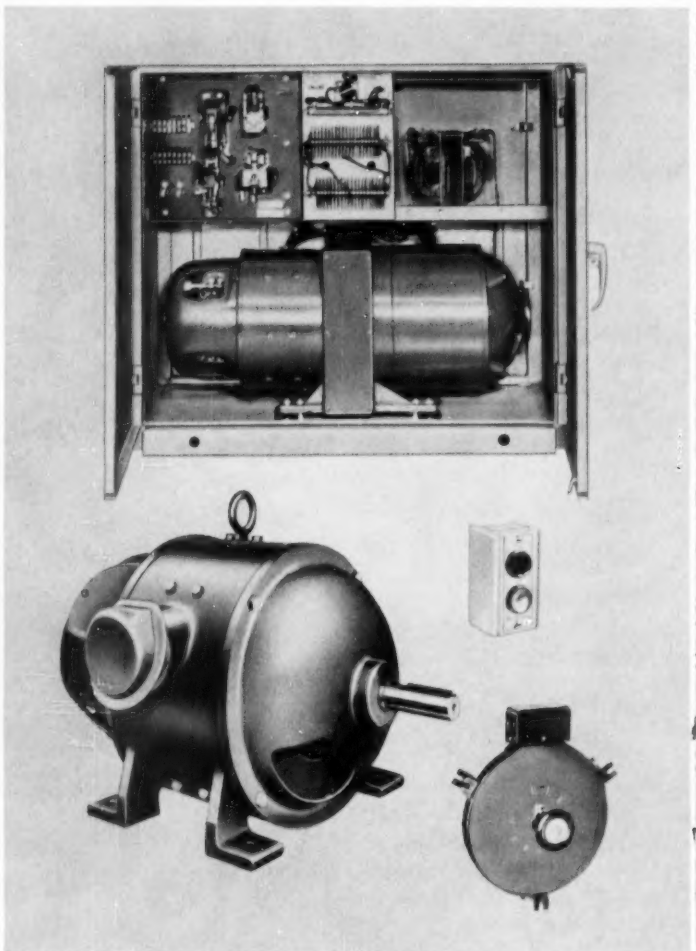
YOU CAN BE SURE...IF IT'S

Westinghouse

Turn to AV Packaged Drives to keep adjustable speed equipment running at peak capacity

The Westinghouse Life-Line AV Drive is a complete, adjustable-voltage drive system—a factory-engineered package. Flexible in application, this packaged drive serves the chemical industry wherever exacting speed control from an a-c power line is required. The Life-Line AV Drive provides: adjustable speed—precise speed regulation—smooth acceleration and deceleration.

Got a tough drive problem that is giving you trouble? Call on the services of a Westinghouse Consulting and Application Engineer. His specialized knowledge qualifies him to analyze fully your specific drive requirements and to recommend the proper equipment.



Here's the backup maintenance and repair service you get when you specify Westinghouse

Westinghouse Maintenance Service is a national organization established to meet all your needs for the repair or overhaul of electrical apparatus. **31 Warehouses,** located in prime industrial centers across the country, carry a well-rounded supply of Westinghouse Genuine Renewal Parts. **38 Specially Equipped Apparatus Repair Shops** are set up to repair every conceivable type of electrical apparatus. **46 Field Service Offices** are ready to make inspections, and on-the-spot repairs for equipment that cannot be moved easily. Ask your Westinghouse Representative how you can take advantage of these facilities. MP-3037

YOU CAN BE **SURE**...IF IT'S Westinghouse

Gentlemen:

Please send me the following Westinghouse literature:

Name .....

Firm.....

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- ☐ New Life-Line "A" Motor B-6154
- ☐ Life-Line AV Drives B-5808
- ☐ Automatic Operation Start with Westinghouse Control.....B-5882
- ☐ Complete Industrial Control and Services..B-6051
- ☐ Westinghouse Motors and Controls in the Chemical Processing Industries.... .....B-4792
- ☐ Preventive Maintenance.. .....B-5477
- ☐ Life-Line Gearmotors.... .....B-5645

sion with its textile yarns, Du Pont has given its nylon resins a new trademark. The new name, "Zytel," will describe Du Pont's nylon molding and extrusion resins. Last year the company redesignated its nylon filaments as "Tynex."

•

Chicago Salthouse: International Salt Co., Inc., is erecting a warehouse in Chicago for its new midwest division. The facilities will have provisions for bulk storage, packaging, shipping, and administrative offices. Located on the Chicago River, the storehouse will be serviced by rail, barge, and inland freighters. Bulk of the shipments to the new distribution terminal will come from the firm's salt mine at Detroit and a mine and refinery at Avery Island, La.

•

Giant Freighters: Foreign shipyards are currently building for the Aluminum Corp. of America two of the world's biggest freighters. Larger of the two, the "*Leader*," will have twice the capacity of any bauxite carriers now in use. The ship, 33,000 deadweight tons, will have an 88-ft. beam, a speed of 12.5 knots, and will be 680 feet long. Both the *Leader* and the *Sentinel*, which is slightly smaller, will carry ore from Trinidad to Mobile, Ala.

•

Additions: Spencer Chemical Co. is erecting a new Hortonsphere at Vicksburg, Miss., to hold anhydrous liquid ammonia. The new globe adds 650,000 gal. to the plant's storage capacity.

• U. S. Rubber is building, in Naugatuck, Conn., a new $3.5-million warehouse to eliminate the present twofold handling of orders.

•

Sales Switches: Eastman Kodak's Distillation Products Industries division is opening sales and executive offices in New York City.

• Sun Chemical Corp. (Long Island City, N. Y.) has grouped seven of its ink divisions into one firm, General Printing Ink Co. GPI will distribute all the inks under their original names through six regional divisions.

• Hendrey Chemical Co., manufacturers' sales agents, has moved from Evanston, Ill., to Chicago.

•

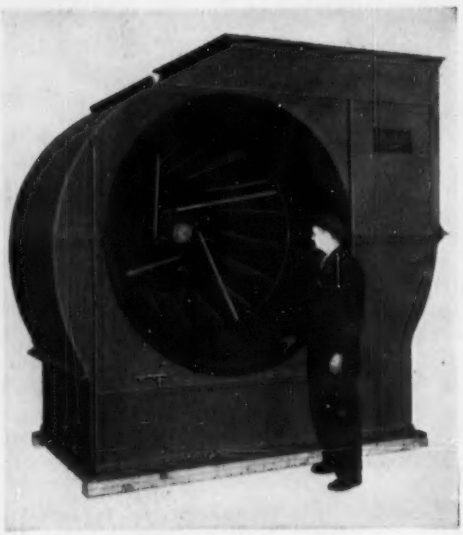
Distributor Appointments: Monsanto Chemical has designated Thompson Hayward Chemical Co. (St. Louis) its Midwestern outlet for sulfuric, hydrochloric, and nitric acid in less-than-tank-car lots. For larger volumes, Monsanto will continue to sell directly.

Your PLANT SITE problems need more than a crystal ball!
LABOR?
POWER?
WATER?
FUEL?
SITES?
MARKETS?
WEATHER?
RAW MATERIALS?
TRANSPORTATION?
TAXES?
VARIABLE FACTORS?
You need FACTS—
the kind of facts we have for you!
That NEW plant for today's defense production tomorrow must produce for a peace-time economy. . . . So, the problem is far more than finding a suitable site. . . . That's only the elementary requirement.
We KNOW the 13-state "Heart of Industrial America." . . . We know the people who, like us, are interested in new plants and new payrolls. . . . We're realistic in providing the facts you require.
Proof of the value of the area is the investment, in the past few years, of nearly $2 billion in new and expanded plants along the B&O.
Right now telephone one of our "plant-locating" men! We'll make a custom-tailored SITE STUDY for YOUR requirements!
NO COST! NO OBLIGATION! NO TALK!
TELEPHONE Industrial Development offices at:
New York 4 Digby 4-1600
Baltimore 1 LExington 0400
Pittsburgh 22 COurt 1-6220
Cincinnati 2 DUnbar 2900
Chicago 7 WAbash 2-2211
LINKING 13 GREAT STATES WITH THE NATION
B&O
Baltimore & Ohio Railroad
Constantly doing things—better!

IF YOU HANDLE FUMES CONTAINING

Sulphuric Acid · Sulphurous Acid · Carbolic Acid
Hydrobromic Acid · Hydrofluosilicic Acid · Hydrofluoric Acid
Phosphoric Acid · Pyroligneous Acid · Acetic Acid · Citric Acid
Chlorine · Oxalic Acid · Tartaric Acid · Formaldehyde
Muriatic Acid · Zinc Sulphate · Ferrous Chloride · Caustic Potash
Ferrous Sulphate · Sodium Acid Sulphate · Sodium Hypochlorite
Copper Sulphate · Zinc Chloride · Bleach Liquor
And Other Corrosive Materials —

"Buffalo" RUBBER-LINED EXHAUSTERS Can Save You Real Money



Cost records in hundreds of plants show that "Buffalo" Rubber-Lined Exhausters last from three to twelve times longer than ordinary metal fans, handling the above fumes! Savings far more than pay for the cost of rubber lining, to say nothing of reduction of down-time. Rotor, shaft and inside of housing have a protective coating of rubber vulcanized on, effectively sealing off fumes from the metal. It's just one more example of how the "Q" Factor* saves you money when you specify Fans by "Buffalo". Write for Bulletin 2424-F for details.

"Buffalo"

**The "Q" Factor—the built-in Quality which provides trouble-free satisfaction and long life.*

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189 Mortimer St. Buffalo, N. Y.
PUBLISHERS OF "FAN ENGINEERING" HANDBOOK
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Sales Representatives in all Principal Cities

VENTILATING EXHAUSTING · AIR CLEANING FORCED DRAFT · AIR TEMPERING COOLING HEATING · INDUCED DRAFT PRESSURE BLOWING

DISTRIBUTION . . . .

• N. V. Chemica, Holland, has named Filo Color & Chemical Corp. (New York) its exclusive North American distributor of potassium ferrocyanide.

• Dow Chemical has appointed the Braun Corp., Los Angeles, to distribute its chlorine in less-than-tank-car lots on the West Coast. Tank-car shipments, however, Dow will continue to sell directly.

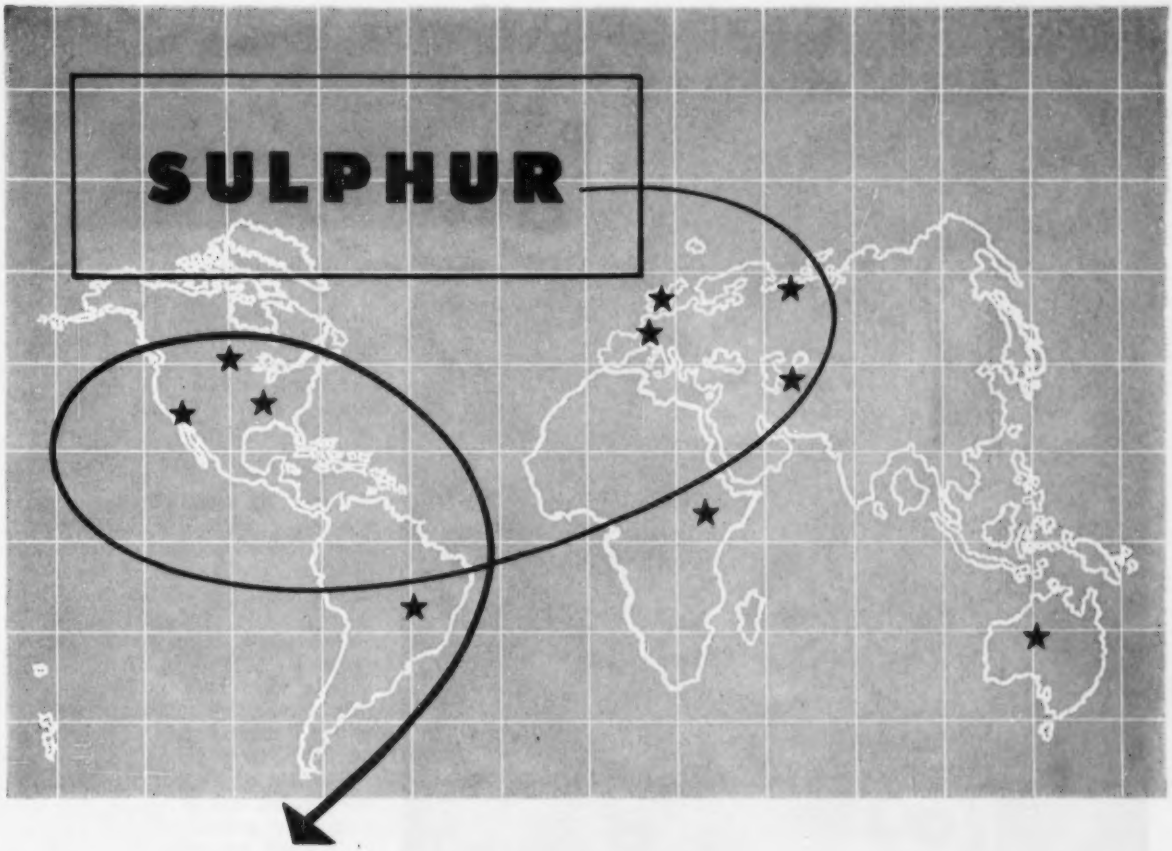
• Pennsylvania Industrial Chemical Corp. has named the Griffith-Mehaffey Co. as distributors in the Louisiana area. PICC manufactures synthetic resins, solvents, and solvent oils for the paint industry.

•

Distribution Center: Louisville, Ky., riding with the South's current industrial boom, will soon have a new chemical distributor. Planning to buy bulk and repackage, Amsco Solvents and Chemicals (Cincinnati) will distribute its materials locally in drums and tank trucks. Materials for which storage structures are planned: aluminum pastes, turpentine, organic solvents, wax, amines, plasticizers, caustic soda, linseed oil, dry stearates.

Gotham Purchasers

INDICATIVE of its immense chemical purchases, New York City stores in one location these 20,000 glass containers. Inspecting warehouse operations here are Walter Roessler, assistant director of stores, and Purchase Commissioner Joseph Spagna, whose department annually places $75 million dollars worth of orders. Never doing anything in a small way, the city's 11 storehouses hold some 50,000 categories of material valued at $4.5 million.



the UNITED STATES *is only one producing country!*

Although the United States is the largest producer of elemental sulphur, its production is only about one-half of sulphur in all forms produced in the free world.*

Sulphides of iron, copper, zinc and hydrogen and calcium sulphate are all sources of sulphur dioxide, the starting point of the manufacture of that universal and all important chemical tool, sulphuric acid.

Elemental sulphur, per se, is essential for such compounds as carbon bisulphide, rubber vulcanizing and certain fungicides, insecticides and black powder. Economics dictate the use of the element or the sulphides or sulphate for other products and processes.

*International Minerals Conference, 1952-53

Texas Gulf Sulphur Co.
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Sulphur Producing Units
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- MOSS BLUFF, TEXAS
- SPINDLETOP, TEXAS
- WORLAND, WYOMING

FORD'S VALLIER: Impreg's expensive, but skilled labor is costlier.

New Pattern For Patterns

Latest thing in wood is Impreg—veneers impregnated with a phenolic resin, then dried and cured without pressure. Its sponsor, Ford Motor Co., is currently utilizing Impreg to improve production methods on its 1956 line of new cars.

While Impreg will first be used by the auto industry, Ford foresees its usefulness extending into furniture and boat-building industries, television and radio fields, and virtually any industry where dimensionally stable wood is needed.

Ford uses Impreg to make punching and stamping die models from which steel dies are then formed. The development is the result of a joint effort by Ford's engineering staff and USDA's Forest Products Laboratory at Madison, Wis.*

Heart of the Matter: To understand Ford's predicament, it's necessary to look more closely at the purpose of wooden die models. Before an auto company can order steel dies for auto body parts, it must first provide models, the size and shape of which are absolutely accurate.

If an error in the dimensions is discovered in time, the model can be resurfaced. But if the error is not discovered and the steel dies are formed, auto schedulings may be disrupted and production stalled for weeks. The ideal wood, then, is one that can be held to the tolerance of which steel is capable.

Plain mahogany board has generally been used to date—too often with unsatisfactory results. Periods ranging from two or three months up to as much as a year may elapse between the time wooden die models are built and steel dies have been copied from them. During the interim, temperature and humidity changes can measurably alter the shape and size of the model. Obviously, a wooden model that would retain its dimensional stability in spite of atmospheric changes would be invaluable to car manufacturers. Hence Impreg.

How It's Made: In the manufacture of Impreg, veneers are impregnated by forcing a resin solution into the sheets by the application of pressure or by soaking veneer in a resin solution. It's been found that the impregnating resin should be a slightly polymerized phenolic, i.e., a resin of low molecular weight in which the resin molecules are sufficiently small to penetrate the cell wall structure.

The initial batch of Impreg made at Forest Products for Ford consisted of about 200 board ft. of laminated panels measuring 1x12x48 in. (Each panel was laminated from 17 plies of 1/16-in. sliced Honduras mahogany veneer.) Afterwards, Impreg die models were built up from these panels, using a room-temperature-setting resorcinol resin as a bonding agent.*

The first sizable output of Impreg was a batch of 5,000 board feet. Impregnating was done by Koppers Co.'s Wood Preserving Div. plant in Orrville, O. which sent the veneers for hot pressing to Haskelite Corp. in Grand Rapids, Mich. and to Nickey Brothers in Memphis, Tenn. Bakelite supplied the phenolic resin (Bakelite Phenolic BR 15 100); Koppers Chemical Div., the resorcinol type (Penacolite G1124).

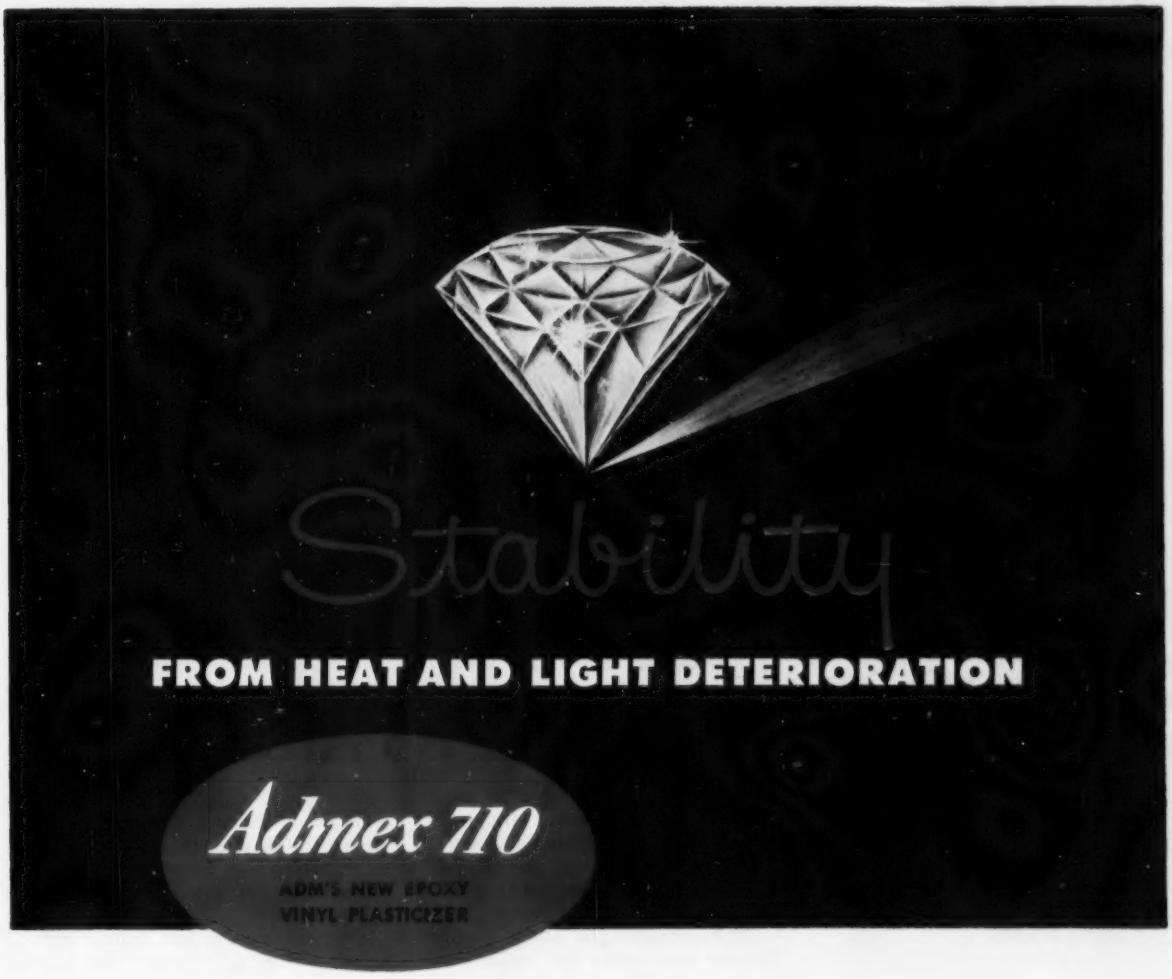
More Costly: While impreg dies will be higher priced than untreated mahogany, A. E. Vallier, head of Ford's engineering staff's experimental fabricating department, believes their use will ultimately save millions of dollars in car production costs. Vallier points out that lumber cost in a die model or pattern is a small percentage—much more is spent for skilled labor.

In the experimental stage, only first-grade Honduras mahogany was used. Now Ford is working with a second-grade type,, which, if successful, should bring down the cost. Vallier says the auto industry uses more than 6 million board ft. of mahogany every year in model making, Ford's share being around 1 million ft.

The report from Ford's 15 die model and pattern shops in the Chicago, Milwaukee and Detroit areas: Impreg's not only more dependable

* Ford's interest in the material began a year and a half ago when a wooden die model supplier reported he couldn't meet a delivery deadline because the models were "moving." The problem wasn't a new one to Forest Products, which had started working on it in the early '40s. But not much was done about the idea until Ford set up a research grant.

* Polyvinyl resin glues—now employed to bond untreated mahogany boards—are unsatisfactory for laminating Impreg pancls since the absorption of water by the treated wood is too slow and incomplete to give good adhesion while the material is clamped together.



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but also easier to work with than conventional mahogany.

Ford has prior rights on the total output of the two companies now supplying it with Impreg and does not contemplate expanding production capacity until there is a bigger demand for the material. Eventually, Ford will offer samples to concerns interested in testing the product—which it thinks is the answer to a problem that dates back 40 years.

New Silicone Finish

Woolens and worsteds can now be treated with a new silicone water-repellent developed by Dow Corning Corp. *(CW, Newsletter, May 1).*

Dubbed Dow Corning 105 Emulsion, the finish cures in 10-20 minutes at 250 F, depending on the weave of the fabric. On fabrics that can stand it, the time can be shortened by curing at higher temperatures. (Silicones are normally cured at 300-310 F, but that's too high for wool.)

According to Dow Corning, the emulsion is the most oil-resistant silicone finish produced so far. Other features: it improves wrinkle resistance and increases flex abrasion resistance 30-65%. Said to be fully compatible with most resinous finishing solutions, the product is available in the form of a stable 40% emulsion. It's comparable in cost with other Dow Corning textile finishes.

Neater Looking Longer

A shaving soap that's said to make a shave last four to six hours longer than normally will soon be marketed by two German firms, August Schaal (Stuttgart) and Vogelsang Werke (Lueneburg).

The soap contains polyoxyethylene adducts to which other ingredients are added. The combination stiffens the lather, delays drying, and activates certain cooling, blood-stanching substances as well as the so-called "CA factor," which causes a slight gooseskin.

Stands Them Up: The effect of the CA factor starts shortly after lathering, causes the hairs to emerge to a greater extent above the skin. When the lather is washed off, the hairs retract to normal position.

By virtue of the CA factor, the German product makes it possible to cut the beard off 0.2 to 0.3 mm. deeper than with other preparations. That means the hair has to grow 4-6 hours longer to reach the shave-surface of the skin again.

FORMIDABLE SPRAY: For apple trees, a streptomycin-terramycin combination.

Antibiotics Go Arboreal

Tens of thousands of fruit trees are currently being sprayed throughout the country with a solution based on a novel antibiotic compound, Agrimycin. It's streptomycin-terramycin combination made by Pfizer.

The compound is being supplied free to growers for test under actual orchard conditions. If the field trial turns out as anticipated, Agrimycin will probably be offered commercially some time later this year.

The Culprit: Pfizer has distributed a sufficient amount to treat around 100,000 pear and apple trees in crucial areas. The disease Agrimycin aims to eliminate is "fire blight."

This bacterial disease has long been regarded as being especially stubborn. One of the most damaging of all fruit trees diseases, it either kills or permanently cripples the attacked tree. (The name "fire blight" stems from the fact that the tree victim takes on the appearance of having been scorched by fire.)

The antibiotic compound is a wettable powder for use in standard sprayers and is recommended for use in a concentration of 100-500 parts to one million parts of water. For the test, Pfizer has asked that there be three sprayings in different stages of blossoming.

One effect the control of "fire blight" could have is to increase the number of varieties of apples produced. At the present time USDA literature lists only 24 in commercial production, although 1,800 exist. This narrow list is due, in some measure, to the preference growers have given to varieties that are resistant to the disease.

Too, the disease has limited pear growing as an industry to a few locations in the U. S. (Partial control is sometimes achieved with copper sprays but they usually cause russetting of the pears.)

The Beginning? As Pfizer envisions the prospects, this is only one opportunity for antibiotics in crop disease control. The reason: bacterial diseases affecting tobacco, tomatoes, peppers, peaches, spinach, walnuts, lettuce and potatoes have been controlled experimentally with terramycin, streptomycin and thiolutin. ("Halo blight", another blight that resists control, can be cured with a water spray containing 1% streptomycin sulfate, USDA scientists report. They along with researchers at the University of Missouri, did much of the experimental work on Agrimycin.)

While the company has high hopes for its product, some plant pathologists fear that price will be prohibitive and will block widespread use of Agrimycin. Their view is that use will be restricted to homeowners who want to treat one or two infected trees.

Only Pfizer can prove if that view is wrong.

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Dispersant NI-W	Ortho-Xylene
Wetting Agents	Xylol
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Gas Odorants	Acetone
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CARBIDE'S GUEST AND HAYNES: More bad news for flies.

Progress and Problems

There was plenty for the 650 attendees to talk about at the 40th midyear meeting of the Chemical Specialties Manufacturers Assn. in Cincinnati last week.

- Cyclethrin, a pyrethrin-like insecticide, was unveiled by Carbide and Carbon Chemicals.
- Quality-checking carnauba and ouricuri waxes has been speeded and simplified by a chromatographic technique developed by S. C. Johnson.
- Insecticide survey showed that 1953 was a good year for the household bug-killer makers.
- Aerosols have climbed to a $150-million/year business, that division's survey showed. Close to 140 million units were packed in 1953.

Synthetic Cousins: Harry Haynes, Howard Guest (*see cut*) and Harry Spansburg took the wraps off cyclethrin. The complex insecticide* has been a hush-hush Carbide and Carbon project for over two years—it's akin to the USDA-developed allethrin, but is made by a process on which Carbide has patents pending.

Haynes sees cyclethrin as being closer to natural pyrethrins than allethrin in effectiveness. Its value appears to be the ease with which its killing power can be boosted with common synergists like piperonyl butoxide and sulfoxide. It can be competitively priced with allethrin, which is now selling for about $12/lb., is lower than natural pyrethrins at roughly $50/lb.

*3-cyclopentenyl 2-methyl-4-oxo-2 cyclopentenyl chrysanthemum monocarboxylate.

Like the pyrethrins, cyclethrin has very low mammalian toxicity. It's thus aimed now at household space sprays.

Carbide, only making cyclethrin in experimental quantities now, can undoubtedly go into big production at its Institute, W. Va., plant. This installation is rated at 500,000 lbs./year allethrin, and is due onstream this summer. Cyclethrin is no less complicated to make than allethrin, and it should be relatively simple to alter production to make this newer insecticide.

Unwanted Additives: Polish makers, plagued since '47 by adulterated carnauba and ouricuri waxes, applauded a simple new test for finding out just how much paraffin they're paying for when they buy the vegetable waxes. The situation has been this: the waxes can be stretched by the addition of paraffin or microcrystalline waxes, and this adulteration doesn't show up in commonly used acid number, saponification number, or melting point tests. It's not uncommon now to find 10% or more additive in waxes.

Ed Wilder, of S. C. Johnson, explained the new tests, which the CSMA hopes to make ASTM standard procedure. Simply, the test pinpoints the hydrocarbon content by removing, with alumina, the vegetable wax from a hot heptane solution of a weighed sample. The paraffin remaining in the heptane, compared with the sample weight, gives a percentage determination with high reproducibility.

Looking Back: Heartily endorsed by most CSMA members have been the recent survey programs. The Insecticide Div. this year gave more than a study of '53's production. The survey covered production back to 1940 and '45, gave a better yardstick to measure current production and consumption.

The aerosol survey had new features, too: container makers and valve manufacturers pitched in with figures on production that proved to be excellent checks for aerosol packing figures. (The survey classified plastic snows individually this year.)

Synthetic detergent and soap makers gave close attention to a fistful of papers on skin irritating effects of detergents—a subject that has received considerable consumer publicity recently.

The next CSMA meeting, at the Hotel New Yorker, New York, Dec. 6-8, will undoubtedly disclose new problems as well as new accomplishments in the fast-changing specialties industry.

Detergent Report

The committee appointed by the British Minister of Housing and Local Government to investigate the general effects of synthetic detergents recently made an interim report on the subject. Two conclusions were presented:

One is that the detergents did not have an appreciably adverse effect on sewage treatment or on the purity of water supplies. The second concerned the dermatological aspects of the detergents.

"In such preparations," the committee stated, "the incidence of dermatitis is not significantly greater than it was when soaps and alkalies, or preparations based on them, were the only common washing products."

Committee recommendations: (1) that no matter what kind of washing product is used, the hands should afterwards be thoroughly rinsed in fresh water and dried; (2) that housewives use a handcream after housework, and (3) that "some better means be found to educate housewives as to the quantities of synthetic detergent preparations necessary for particular purposes, for it is probable that the slight existing risks of dermatitis arise less from merely using them than from their excessive use."

•

Paper Size: A new paper size, Mersize

BACK IN THE 1880's

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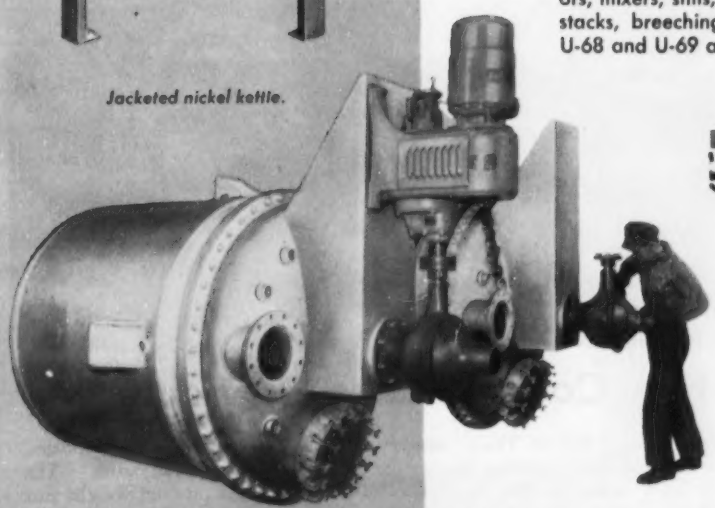

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RM Dry, has been developed by Monsanto Chemical Co.'s Organic Chemicals Division. The maker says it may be used directly without first being put into solution.

•

Nonasphaltic Mastic: Benjamin Foster Co. (Philadelphia) has brought out a new fire-resistant Type 80 Mastic. It's classified with a low fire-hazard rating by Underwriters' Labs (Chicago). Nonasphaltic, it is dark brown in color.

•

Carbon Black Bulletin: Acheson Dispersed Pigments Co. (Philadelphia) has published a technical bulletin on the function of carbon black in the protection of exposed polyethylene.

•

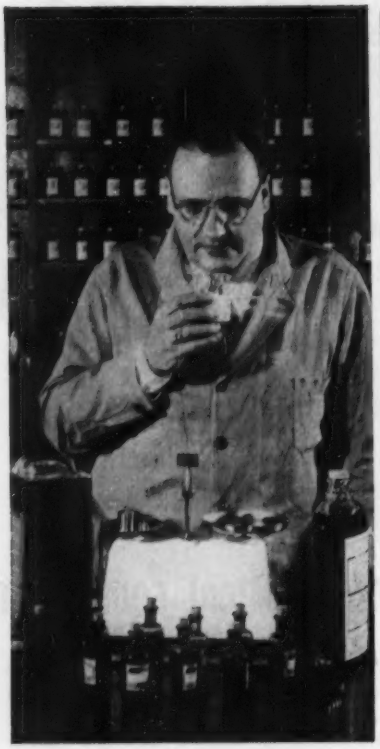
Move to Michigan: The Pann Products Co. (Detroit) manufacturers of oil paint sets, will move its Tiffin, O., facilities to Utica, Mich.

•

Pressure-Sensitive Tape: Labelon Tape Co., Inc. (Rochester, N.Y.) now markets a pressure-sensitive labeling tape that adheres to both dry and oily metal surfaces. Known as Oil-Stik, it is said to combine with oil to yield a firm bond. It's available in colors and in widths from ⅜ in. to 22 in.

•

Arc-Resistant Plastic: National Vulcanized Fibre Co. (Wilmington) has developed a plastic it claims is the first arc-resistant material capable of being punched or shaved to shape. Name: Grade Y-2401. The maker reports it has good electrical properties



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Standard Paint After 37 Hours

New Coating After 140 Hours

A NEW PROTECTIVE aircraft paint that doesn't peel at jet speeds is now being made by General Paint Corp. (Los Angeles). The product, Conver Plate, is a mixture of amine-catalyzed copolymerized resins. The resins are long chain types similar to epoxies, polyesters, methacrylates. The maker says its product weighs just half that of other paints, i.e., 6 lbs./1,000 sq. ft. The above fighters are twin-jet Navy McDonnell F2H-1 Banshees.

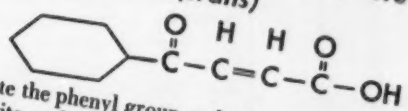
For polymerization reactions

THREE NEW NATIONAL ANILINE INTERMEDIATES

with multiple multi-functional groups and points of potential reactivity

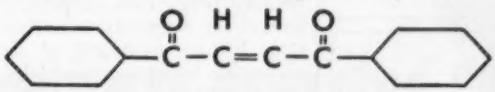
BETA BENZOYL ACRYLIC ACID

(trans)



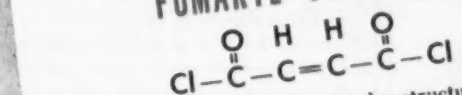
Note the phenyl group and carboxyl group at opposite ends, the keto group and double bond in the middle . . . four points of reactivity for your own exploration. Technical Bulletin I-6 includes a comprehensive literature search.

trans-1,2-Dibenzoyl Ethylene



With its reactive double bond and its two carbonyl and phenyl groups, this diketone molecule should be widely useful in compounding resins, plastics, pharmaceuticals, etc. Technical Bulletin I-3 contains six pages of chemical properties and reactions plus copious literature references. Use it as a starting point in your work.

FUMARYL CHLORIDE



Here is an interesting molecular structure with a reactive double bond and two acyl halide groups that should be a versatile building block in organic syntheses. Technical Bulletin I-7 summarizes present data, gives typical reactions and literature references as a guide to your possible application research.

To tell you where you can use such highly-reactive chemicals would be impractical and presumptuous. So we merely direct your attention to their many multi-functional groups and let your chemical imagination take wings.

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Paint Stabilizer: The Borden Co.'s Chemical Division has adapted Cascoloid St-40, a sodium-free caseinate, as a paint stabilizer. It may be used with butadiene-styrene and acrylic resins and also with PVA emulsions. The solids content ranges from 50 to 53%.

•

Fiberglas Screens: Bakelite Co. reports that screening made of Fiberglas yarns coated with a pigmented vinyl resin coating are now being sold. The coating contains color pigment that eliminate need for painting the screen. Retail price: 16¢/sq. ft.

•

For Radiation Sickness: Evans Chemetics, Inc. (New York) has introduced B mercaptoethylamine hydrochloride for treatment of radiation sickness.

•

Trio: Lederle Laboratories (Pearl River, N.Y.) has developed three new products. Ledercillin in Oil is a repository preparation of penicillin intended for deep intramuscular injection. It's for treatment of local or systematic infections caused by penicillin-sensitive organisms.

Primpolex is a geriatric liver and vitamins preparation. Antirabies Serum is an agent for the preventive treatment of human rabies.

•

For Skin Infections: Pitman-Moore Co., division of Allied Labs (Indianapolis), has put out a combination of polymyxin, bacitracin and neomycin for treatment of superficial skin infections. It's called Neo-Polycin.

•

Wyoming Contracts: Wyoming's Dept. of Agricultural has awarded Aeronautics Service, Inc. (Cheyenne) contracts for the aerial spraying of 247,000 acres of grasshopper-infested forests and rangelands. An Aldrin and diesel oil formulation will be used.

•

Available Again: Celanese Corp.'s Plastics Division has resumed the manufacture of cellulose acetate tinsel molding compounds.

•

Flame-Retardant Laminate: Russell Reinforced Plastics Corp. (Lindenhurst, N.Y.) is making a new flame-retardant, self-extinguishing electrical insulation laminate. Based on a Cyanamid polyester resin, it is sold under the tradename Laminac 4146.

Customers can depend on DIXIE CHEMICALS

Farmers spray cotton fields with Dixie "Early Crop" to induce earlier harvesting, facilitate picking, and aid pink bollworm control. All drums of "Early Crop" are protected by Tri-Sure Closures.

Fence posts are preserved by soaking them in Dixie "Penta", in a tank formed by welding together two empty drums. "Penta" is always delivered in drums equipped with Tri-Sure Closures.

—always delivered in drums protected by *Tri-Sure*® Closures

AGRICULTURE gets valuable help from Dixie's fine line of chemicals—which includes "Early Crop", the defoliant that speeds up cotton harvesting, and "Penta", the fence-post preservative that also destroys termites.

Farmers *know* they can depend on these and other Dixie Chemicals—shipment after shipment, year after year—because they are *made right* and *protected right*—in drums equipped with Tri-Sure* Closures.

The Dixie Chemical Company uses Tri-Sure Closures to prevent losses in transit . . . as proof of "full value every time" . . . as an expression of regard for every customer. And, in all these ways, oil and chemical companies the world over are proving that it *pays* to insist on the Tri-Sure *Flange*, *Plug* and *Seal*.

Give *your* shipments the security they should have by specifying "Tri-Sure Closures" on every drum order.

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CLOSURES

*The "Tri-Sure" Trademark is a mark of reliability backed by over 30 years serving industry. It tells your customers that genuine Tri-Sure Flanges (inserted with genuine Tri-Sure dies), Plugs and Seals have been used.

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Tri-Sure Products Limited, St. Catharines, Ontario, Canada

1 IN GROUP session, propellant planners hash out formulation, shape, of desired smoke-generator charge.

2 CONCOCTION, rudimentary testing of formulas are done in compounding lab. Here, burning rate is observed.

3 MORE INVOLVED tests are next; staffer sets burner, which ignites propellant strand, gauges pressure release.

4 SELECTED from tests, a propellant is made in pilot batches. Oxidizer is micropulverized (above) before . . .

Probing Propellants' Future

If you are looking for a compact source of heat, power, or gases, you ought to consider solid propellants—the chemical combinations that supply the drive to rockets. At least that's the feeling of forward-looking Thiokol Corp., (Trenton, N.J.), one* of a select circle of companies researching these energy sources for the armed forces.

Admittedly speculative in nature, Thiokol's roseate visions of commercial applications are grounded in something as tangible as a new pilot plant. A meaningful addition to the firm's propellant research potential, the pilot plant is one of the few privately owned and operated facilities of its kind. As such, it is free to probe the nonmilitary future of its security-shrouded product.

Current outlets for solid propellants are in catapults, rockets for ordnance and aerodynamic studies, turbojet engine starters, smoke generators. In

* Others: Phillips Petroleum, Standard Oil of Indiana, Aerojet-General, Reaction Motors.

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COMPANY_____

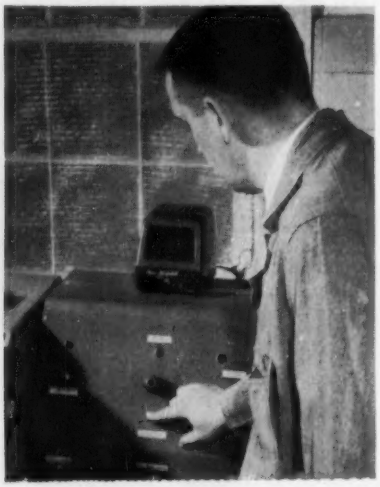
ADDRESS_____

CITY_____ ZONE____ STATE_____

5 MIXING in this equipment with the liquid organic fuel. A hazardous operation, mixing is done in concrete chamber, observed . . .

6 FROM OUTSIDE with periscopes Recipe is next molded and cured.

7 IN THE FIELD, the trial solid propellant is set up in this shed for ballistics evaluation. Charge is ignited by intercom-equipped engineer . . .



8 PRESSING BUTTON in distant hut. Apparatus automatically records data.

assist take-off units, they are enjoying their single civilian use.

But according to Thiokol, there should be others. Likely prospects: as gas generators for pressurizing and expelling fluids; in safety and signaling flares; as a source of power in pile drivers. Moreover, the company is confident that there are many other still-unappreciated openings for a relatively inexpensive, short-duration source of heat, gases or power.

Since very few businessmen will buy a pig in a poke, the ambitious company may find itself badly hamstrung by security regulations. Propellant formulations are secret. In a general way, they may be described as heterogeneous mixtures of an inorganic oxidizer and a matrix of organic fuel. Thiokol's research emphasis is on fuels.

The ideal solid propellant has high density, shock resistance, flex and tensile strength; moreover, its nonhygroscopic, easy to mold and ignite, low in cost, and stable at extreme temperatures. Shape is also important, helps determine burning rate.

More than this cannot be told. But there's nothing confidential about the principal steps involved in the preparation of these tidy bundles of useful energy.

From start to finish, it's a chemical process operation. Briefly, (1) the inorganic oxidizer is ground in a micropulverizer (particle size is critical); (2) blended (where a mixture of oxidizers is used); (3) mixed with the organic fuel (a viscous liquid; (4) cast in a mold; and (5) cured in an oven.

On these pages the CW CAMERA brings you a closeup of how these proceedings implement the development of a propellant charge for a smoke generator. But, emphasizes

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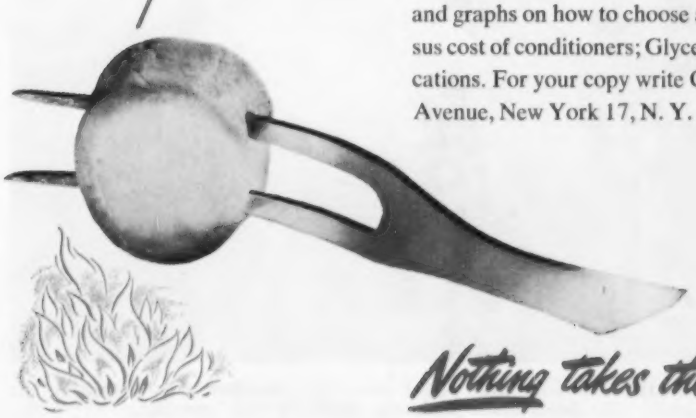

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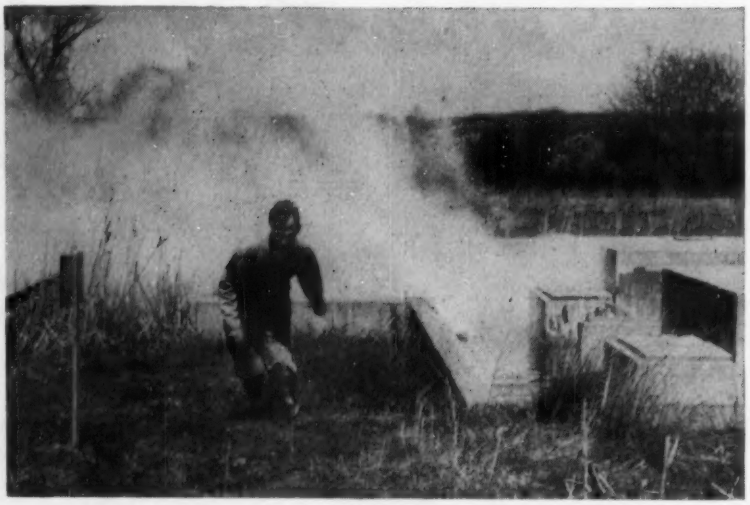


9 HIGH-TAILING technician has just ignited new propellant in actual smoke-generator test. Result is critically observed by . . .

Thiokol, the end product might just as easily be a portable aerosol dispenser that could lay down an expansive insecticide fog or fumigate a warehouse. The principle is the same.

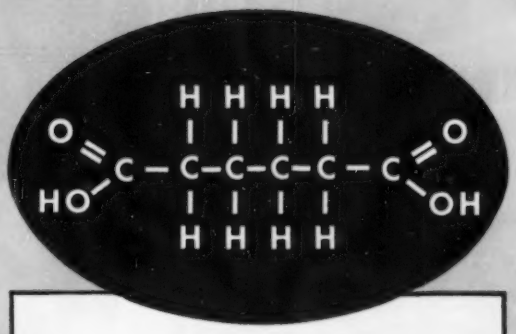
Scene of the work is the new pilot unit. Though not apparent in the pictures, safety is an obvious factor in the building's design. Such "just in case" features as blowout walls and a loosely mounted roof also have been incorporated. Complete air conditioning assures the low humidity needed for this kind of work.

Thiokol's interest in solid propellants dates back about six years; since then it has worked for the Army, Navy and Air Force. Four of the company's six divisions, engaging 150 scientists and 900 additional staffers, are now in the propellant program. Facilities at Trenton, Elkton, (Md.) and Huntsville (Ala.) stress research. The Longhorn division (Marshall, Tex.) is readying a plant for large-scale manufacture of rocket charges.

Despite this rash of propellant activity, the polysulfide polymers (produced at Trenton and Moss Point, Miss.) bearing the company name are still the mainstays of Thiokol's business. By the look of things, however, the relatively new propellants seem destined to play a permanent and increasing role in the firm's scheme of things.

10 PROJECT ENGINEERS posted close by. Propellant does not make the smoke, only drives smoke-producing chemicals from generator.

Investigate . . . DU PONT ADIPIC ACID



White crystalline solid . . . . . 99.60% min.

PHYSICAL PROPERTIES

Melting Point—152 0.1°C. (305.6 0.2°F.)

Solubility—Soluble in Methanol, slightly soluble in water and cyclohexane at room temperature.

pH of 3% solution—2.7 @ 25°C.

CHEMICAL PROPERTIES

Relatively Stable—can be held in molten state for long periods without decomposition . . . decomposes at temperatures approaching its boiling point. Is not oxidized by strong nitric acid at ordinary temperatures.

Reacts with Alcohols and basic materials in normal manner.

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New Part-Time Job for Neutrons

IN A SURPRISING new move, the Atomic Energy Commission has loosened its grip on one of the biggest guns in the national reactor arsenal. From now on the materials testing reactor (*above*) at AEC's Idaho Falls (Idaho) installation will be available to industry on a limited basis.

Boasting the highest neutron flux of any reactor now in existence, the Idaho Falls atomic furnace, known as MTR, is used primarily in the testing of materials for future reactor construction. It will continue to serve that purpose. But part of the time, its intense neutron beam will be working for industrial researchers.

In this new capacity, MTR will be joining its less intense counterparts at Argonne, Brookhaven and Oak Ridge national laboratories. More powerful than any of these three, it will produce isotopes of substantially higher specific radioactivity. These, in turn, should shed new light on the processes they will help investigate.

Because of security considerations, industry-sponsored experiments will be performed by the commission's contractor: Phillips Petroleum in this case. Union Carbide is in a similar position at Oak Ridge. Requirements of the atomic energy program will, of course, take precedence over all nongovernment work.

Isotope production is not the full measure of MTR's potential value to industrial firms. The powerful atomic furnace could play an important role in fundamental research of broad significance to entire industries. The Brookhaven reactor, for example, is now engaged in an Owens-Illinois-sponsored glass study (*see below*) that might show the way to a bevy of new glass applications.

Charges will be made for public irradiations in MTR. Although they will be based on total costs (including depreciation, overhead and operating expenses), they won't be high enough to frighten away qualified research organizations.

Glass Key: New clues to the chemical structure of glass are expected to develop from Massachusetts Institute of Technology studies sponsored by Owens-Illinois Glass Co. (Toledo, O.). Once the atomic structure of glass is known, an intensive effort to tailor-make improved glass products can begin. The work will center around glass that has been exposed to neutron bombardment in one of the nuclear reactors at Brookhaven National Laboratory. The MIT researchers hope to learn the positions and bond-strengths of the atoms in the irradiated glass.

•

Hydrazine Test: Concentrations of hydrazine as low as 40 parts per million in solution can be determined by a

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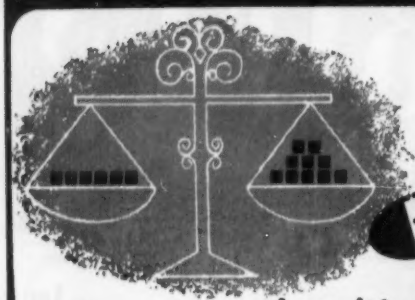

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RESEARCH . . . . . .

novel technique developed at the University of Liverpool. It's a colorimetric method based on the brown color produced when the hydrazine solution is treated with picryl chloride in chloroform, followed by addition of alcoholic potassium acetate.

•

Cracking Catalyst: Newly available from American Cyanamid Co. are three grades of microspheroidal fluid cracking catalyst. They're Aerocat MS catalysts grades 50/60 (light), 50/70 (intermediate), and 75/85 (narrow). Howard Nehms, manager of Cyanamid's refinery chemicals department, says the new catalysts result from studies showing that choice of the most efficient catalyst depends upon a knowledge of fluid cracking velocities. The new grades are designed for low, average and high velocities, respectively.

•

New Bromide: A new procedure for making a fluorinated organic bromide as a step toward a variety of potentially useful new chemicals is detailed in patent 2,678,953 recently granted to Douglas Aircraft Co., Inc., (Santa Monica, Calif.).

•

Phenol Alkylation: An innovation in phenol alkylation evolved by Shell Development Co. (Emeryville, Calif.) opens a new route to 2,3,5-trimethyl phenol. The process (covered by U.S. patent 2,678,951) comprises contact of methanol and 3,5-xylenol in the vapor phase with an active alumina catalyst.

•

Triple Esters: Virginia-Carolina Chemical Corp. (Richmond, Va.) is credited with a new process for producing aliphatic triesters of phosphorous acid. Key: addition of a phosphorous trihalide to an aliphatic alcohol while holding temperature in the −10 to 25 C, range, keeping the mixture neutral with ammonia. Particulars are in U.S. patent 2,678,940.

•

Hydration-Proof: New calcium oxide refractories with high resistance to hydration can be made, using the oxides of calcium, titanium and zirconium according to U.S. patent 2,678,887, awarded to National Lead Co. (New York, N.Y.).

•

Nongelling Plastisol: Tests (30 days, 50 C) by Monsanto's organic chemicals division show no gelling in plastisols containing di-isodecylphthalate. Di-isodecyl adipate gave a similar slow viscosity build-up. The formulations also had rapid fusion characteristics.

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Ever see a gum that gels when it's heated?

Methocel does . . . and in doing so, it provides the answer to some interesting industrial problems

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SPECIFICATIONS

Titre °C	62 to 64
Acid Number	195 to 201
Iodine Value	3.0 Max.
Saponification Value	196 to 202
Color (5¼ inch Lovibond)	15Y/1.5R

TYPICAL COMPOSITION
(Chain Length-Acids)

C_{16}	10.0%
C_{18}	90.0%
Unsaturated	3.2%
Saturated	96.8%

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Good Prognosis

Whether business activity slows further or speeds up, whether the government cuts back its research expenditures, industrial research will continue to grow—although at a slower pace than in the recent past.

With a revealing statistical study* to use as a fluoroscope, Howard S. Turner, Pittsburgh Consolidation's director of research, has painstakingly scanned the innards of industrial research. His findings, detailed in the new *Harvard Business Review*, reveal a good prognosis.

Despite the recent downturn of business activity, Turner sees no decline of research. He states: " . . . the handling of research budgets during the business decline in 1949 suggests that most companies would tend to hold research at current levels."

One important reason: "Many companies are committed to continuing programs that could be cut back materially only at a real cost in lost momentum."

Cutbacks in federal research spending, moreover, are not considered a cause for general alarm. Turner points out that most of this spending is concentrated in three or four industries encompassing only a small proportion of the country's industrial laboratories.

Even the nonprofit research organizations, which devote a significant portion of their activities to federal work, are not put in grave jeopardy from the government's curtailed research outlay. Turner makes the point that they "find themselves serving more as repositories for problems that call for the attack of specialists . . . than as collective research laboratories for small companies."

"Their further growth," he predicts on this basis, "even discounting the heavy support they receive currently from the government, seems assured."

Growth still seems to be the industrial research keynote; but for a while, at least, it will be more restrained than during the past several years. Two factors: the current business slowdown; technical manpower scarcity.

But, Turner declares, for better or for worse, "big" research is here to stay. 'The question in top management," he emphasizes, " . . . is no longer 'whether' but 'how much' and 'in what direction.' There seems to be little likelihood of a return to 'whether.' "

* Dearborn, Kneznek, and Anthony, "Spending for Industrial Research 1951-1952." Published late last year, this study was profiled in CW, Dec. 12, '53.

Will your process do better with a Hooker chlorobenzene?

If you use chlorobenzenes in your processing, you may improve results with one of these versatile Hooker compounds.

They are widely used as intermediates in the manufacture of dyestuffs and other organics. But they have other virtues, too—important ones.

For example, two of the Hooker chlorobenzenes listed here have excellent solvent properties. One is highly effective as an insecticide, either alone or in special formulations.

Two are recommended as heat transfer media for condensing vapor systems, above the range conveniently covered by steam.

If you would like technical data on these Hooker chlorobenzenes, just check and mail the coupon. For samples and contract information, please write us, outlining your requirements.

MONOCHLOROBENZENE

C_6H_5Cl

Description: Clear, colorless, moderately volatile liquid, with a characteristic mild odor. Completely miscible with most organic solvents; immiscible with water.

Physical data:

F. P.	−44°C.
Dist. R.	1° incl. 132.0°C.
Sp. Gr., 15.5°/15.5°C.	1.114
R. I., n20/D	1.524
Flash Point	29°C.

USES:

Intermediate in manufacture of insecticides, dyestuffs, drugs, perfumes, and other organic chemicals.

Solvent for paints, varnishes, lacquers; general organic solvent.

Heat transfer medium for condensing vapor systems.

Shipping containers: 5-gal. cans; 55-gal. steel drums; tank cars.

ortho-DICHLOROBENZENE, Tech.

$C_6H_4Cl_2$

Description: Clear, colorless liquid with a characteristic odor. Completely miscible with most organic solvents; immiscible with water.

Physical data:

F. P.	−10° to −22°C.
Dist. R.	4° incl. 179.5°C.
Sp. Gr., 15.5°/15.5°C.	1.310
R. I., n20/D	1.550
Flash Point	79°C.

USES:

Solvent for gums, resins, tars, rubbers, oils, fats, asphalts, sulfur, charred grease and oil.

Degreasing agent for metals, leather, hides, wool.

Insecticide for termites, wood borers, etc., and in anti-fouling paints.

Ingredient of metal polishes, paint and varnish removers.

Heat transfer medium for condensing vapor systems.

Intermediate in manufacture of dyestuffs, other organics.

Shipping containers: 55-gal. steel drums, tank cars.

1, 2, 4, 5-TETRACHLOROBENZENE

$C_6H_2Cl_4$

Description: White crystalline solid with almost no odor. Packaged in flake form. Insoluble in water; soluble in many organic solvents.

Physical data:

Chlorine Content	65.7%
M. R.	137° to 140°C.
Dist. R.	240° to 246°C.

USES:

Intermediate in manufacture of 2, 4, 5-trichlorophenol and 2, 4, 5-trichlorophenoxy acetic acid, and other organics such as azo dyes.

Suggested as impregnant for fire and moisture resistance in electrical and other insulating compounds.

Shipping containers: Fiber drums, 200 lbs. net.

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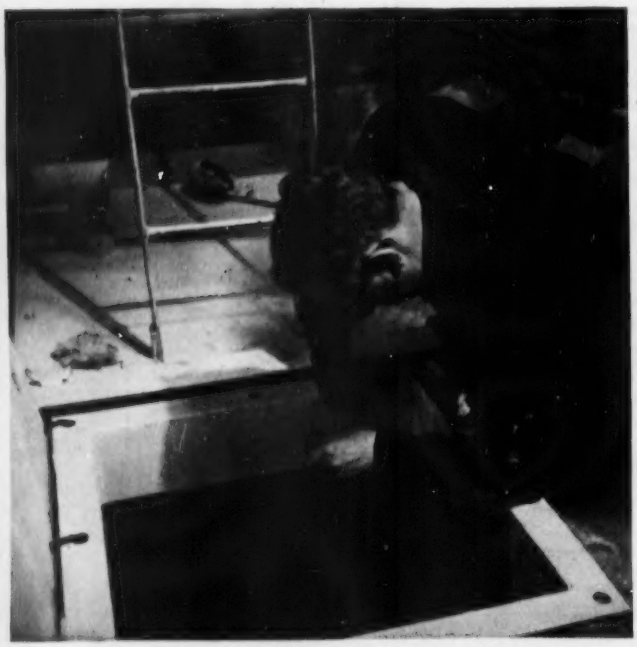
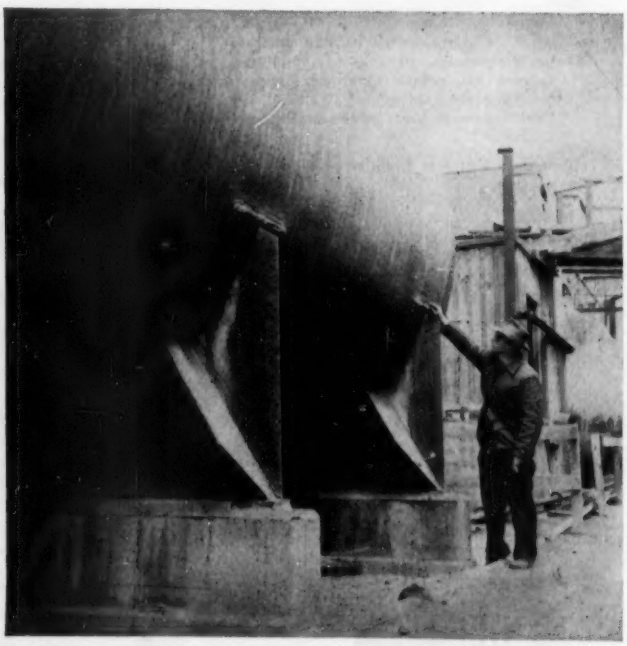
PAPER WORK draws heavily on every corrosion engineer's time, but with Diamond Alkali's McIlrath it's only an early morning prelude to testing protective coatings—a pet project that gets his attention right after he checks some test data he has compiled.

Man Against Deterioration

On the company's organization chart, the corrosion engineer is a bent pin that no one can quite seem to place. He's not the man who designs or builds the plant. He didn't develop the process, doesn't govern the operation, and isn't responsible for the product. But without him to lean upon, the whole production masonry could well collapse into a heap of separate stumbling blocks instead of forming a smooth-fitting archway to higher operational profits.

The bulk of his work is preventive in nature, and it is here that he is valuable in dollars and cents to his company. In the chemical process industries it is his job to find the material or anticorrosion method in a specific situation that will give best service. He runs tests, compiles data on new metals, alloys, paints, films and other protective coatings, chemical and cathodic protection methods. He tests acidity or alkalinity of process liquids and ground soils, notes prevailing wind directions (one side of a building may require an alkali-resistant paint; another, an acid-resistant coating), and may even check effec-





ON AN EMERGENCY CALL from chlorinated solvents division, McIlrath checks flaked paint on process tank interior (left); but bulk of his work is preventive in nature. On way back, storage tank's asphalt coating falls under his probing jackknife.

ONLY ROUTINE in McIlrath's work is his thrice-weekly call (left) on plant engineer Braski. After that, it may be a fast chat (center) about new materials with chromate division superintendent Cooke, or (right) with technical director Welshens.

tiveness of different thicknesses of paint coatings. He then records his observations and experiences, sets up standards, writes specifications.

Professional Profile: Conversely, the corrosion engineer's job itself just about defies specification. Of its members recently surveyed by the National Assn. of Corrosion Engineers,* 58.1% listed their positions as engineer; 10.0%, as research; 8.5%, as executive; 5.3%, in selling; 4.8%, as operating; and 3.2%, as consultants. In smaller percentages, the remaining 10.1% pegged themselves as supervisors, teachers, inspectors, or in maintenance, purchasing, and other positions.

Headquartered in Houston, the NACE draws most heavily on Texas for its membership—disproportioned by the state's preponderance of natural resources. Analysis of NACE's Texas contingent shows that pipeline companies account for about 50%; the chemical industry contributes approximately 10%, and petroleum refineries, communications, power, gas distribution, and marine work make up the rest. Other findings include:

- Active corrosion engineers range in age from recent college graduates of about 25 to men of 70.
- Engineering background of the members is predominantly chemical;

* NACE was organized in 1943 with 200 members; today, has over 5,000. It sponsors the Intersociety Corrosion Committee, and through it, works closely with 34 other major technical societies and groups on corrosion problems.

McILRATH TALKS to painters about color scheme for coal pulverizing plant in line with company's long-range color painting program. Results of an older project come in for scrutiny as McIlrath climbs inside a tank car to check on patched linings.

McILRATH listens to salesman laud a new coating; later, purchasing department calls, asks his opinion of the material.

A QUIET "BULL SESSION" often closes McIlrath's day. Last thing at night before heading home, he updates his diary.

then metallurgical, mechanical, electrical, and so on down the line.

• Salaries for beginners start at about $375/month; top figures and advancement depend upon the individual. Some corrosion engineers go on to management and executive levels and corresponding pay scales.

Living Statistics: This week, CHEMICAL WEEK focuses its narrative camera on one of NACE's most active members, S. W. (Mac) McIlrath of Diamond Alkali's Painesville (O.) plant, as he went about a typical day's work. And though there is no such thing as a "routine" day, McIlrath believes his activities, his problems and his approach to them are representative of corrosion engineers as a group, regardless of industry or job title.

McIlrath, now 40, got his first taste of corrosion work as a civilian employee of the Army Ordnance Corps in the first phase of World War II. Later, in the Navy, he helped write specifications for the Bureau of Ordnance on reconditioning and mothballing rocket motors. Since 1946, he has been corrosion engineer at Painesville, corrosion consultant to Diamond Alkali's other plants.

At the plant, McIlrath is pegged as a staff engineer. He reports directly to the technical director but works closely with the plant engineer on construction materials, with the maintenance staff on materials and application methods, with the purchasing department on ordering of materials. He trouble-shoots for production, writes specifications for customer plants and Diamond's technical service group. While it is difficult to put a tangible value on his services, McIlrath figures he has saved his company at least 10 times his salary every year, points, as signs of Diamond's

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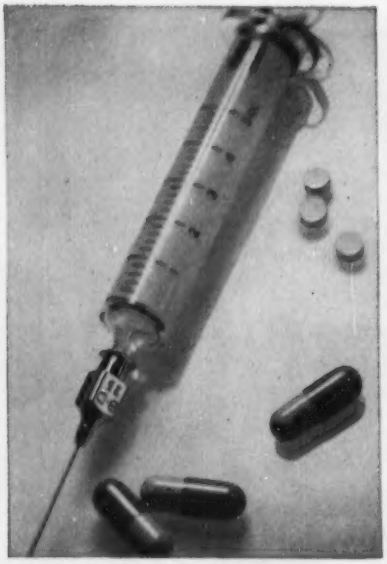

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satisfaction with his job, to the company's encouragement of his work and to the new office-laboratory it is building for him.

Actually, McIlrath's work keeps him away from his office a great part of the time, often takes him from one end of the plant's 250-acre site to the other. But as he sees it, these jaunts afford him invaluable knowledge of plant layout, design and operation. McIlrath agrees that the theory learned in college is valuable (he is a graduate chemical engineer with a liberal dash of metallurgy courses) but believes that the practice derived from living with everyday problems is what makes a good corrosion engineer. He also makes a point of attending all outside corrosion seminars and conferences his busy schedule will allow.

McIlrath might also have added to his own qualifications a long and enduring interest in chemical technology. From the age of 12, when his grandmother gave him a chemistry set, he wanted to be a chemical engineer. (The desire nearly led to disaster a following Fourth of July when, trying to make a firecracker, he unwittingly turned some red phosphorus into yellow, which promptly exploded in his face, badly burning his eyes.) Also on the personal side, he relaxes at home by going over his stamp collection with his wife, helping his two children with their Erector set—no chemistry sets, he says, after his own childhood experience.

Like his numerous counterparts in corrosion engineering, McIlrath is ambitious but unsure as to where the next step will lead. For the nonce, he is satisfied with his job, enthusiastic about his work "except that there isn't enough time" to do everything he would like to do.

EQUIPMENT . . .

Aluminum Fingers: American Air Filter Co., Inc. (Louisville) uses aluminum fins on its new copper and steel heating lines to increase heat transfer efficiency by creating greater air flow turbulence. The tubing is mechanically expanded into fins.

•

Rugged Flooring: Gamble Brothers, Inc. (Louisville) introduced its new industrial flooring material to the trade at the recent Basic Materials Exposition in Chicago. The flooring is called Gam-En-Wood, consists of a rubber-based plastic (U.S. Rubber's Enrup) bonded to solid or laminated hardwoods. The material is resistant to wear, chemicals, oil and grease, as well as nonconductive, fire-resistant, resilient and sound-absorbing. It is also claimed to have good nonslip qualities.

•

Name Change: Hamer Oil Tool Co. (Long Beach, Calif.) has changed its name to Hamer Valves, Inc.; address is the same.

•

Mobile Extinguisher: Ansul Chemical Co. (Marinette, Wis.) has put its dry chemical fire extinguishers on wheels. The wheels are rubber-tired and ball-bearing, are attached to a 16-lb. cart called Pull-it. The cart is 44 in. high, 16 in. wide and 13 in. deep, will accommodate a 30-lb. extinguisher together with 6 ft. of rubber hose. Designed to provide faster transport to the scene of industrial fires, the units are compact enough, declares Ansul, to be easily maneuvered through narrow plant aisles.

•

Flexible Filler: MRM Co., Inc. (Brooklyn, N.Y.) has developed a volumetric attachment for installation on gravity, vacuum or volumetric liquid filling equipment. The unit permits measurement and control of liquid fills within a tolerance of ± 1 gram, declares MRM, comes with various heads for different desired fills.

•

Adjustable Sealer: Amsco Packaging Machinery, Inc. (Long Island City, N. Y.) is marketing its Automatic Hi-Speed jaw bag sealer with a new adjustable floor stand. The stand can be hand-cranked to heights of the adjoining conveyors that feed bags into the machine for labeling and sealing.

•

Adaptable Pump: Deming Co. (Salem, O.) is adding an end-suction centrifugal pump, the Deming Fig. 4011 Series, to its equipment line. The pump is available alone or in combination with electric motor or fan belt-drive adaptor. Vital statistics include discharge range from 1 to 5 in., capacity to 1,000 gpm. against heads to 250 ft. Axial shaft adjustment regulates capacity and head, compensates for wear, and can be made while pump is operating. A semiopen, three-vane impeller is standard equipment, but for use with liquids that tend to clog or coat metal surfaces, the same impeller is available (at extra cost) with additional wiping vanes on the back.

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Geared Viscometer: Drage Products (Union City, N.J.) will handle U.S. distribution of the Drage viscometer

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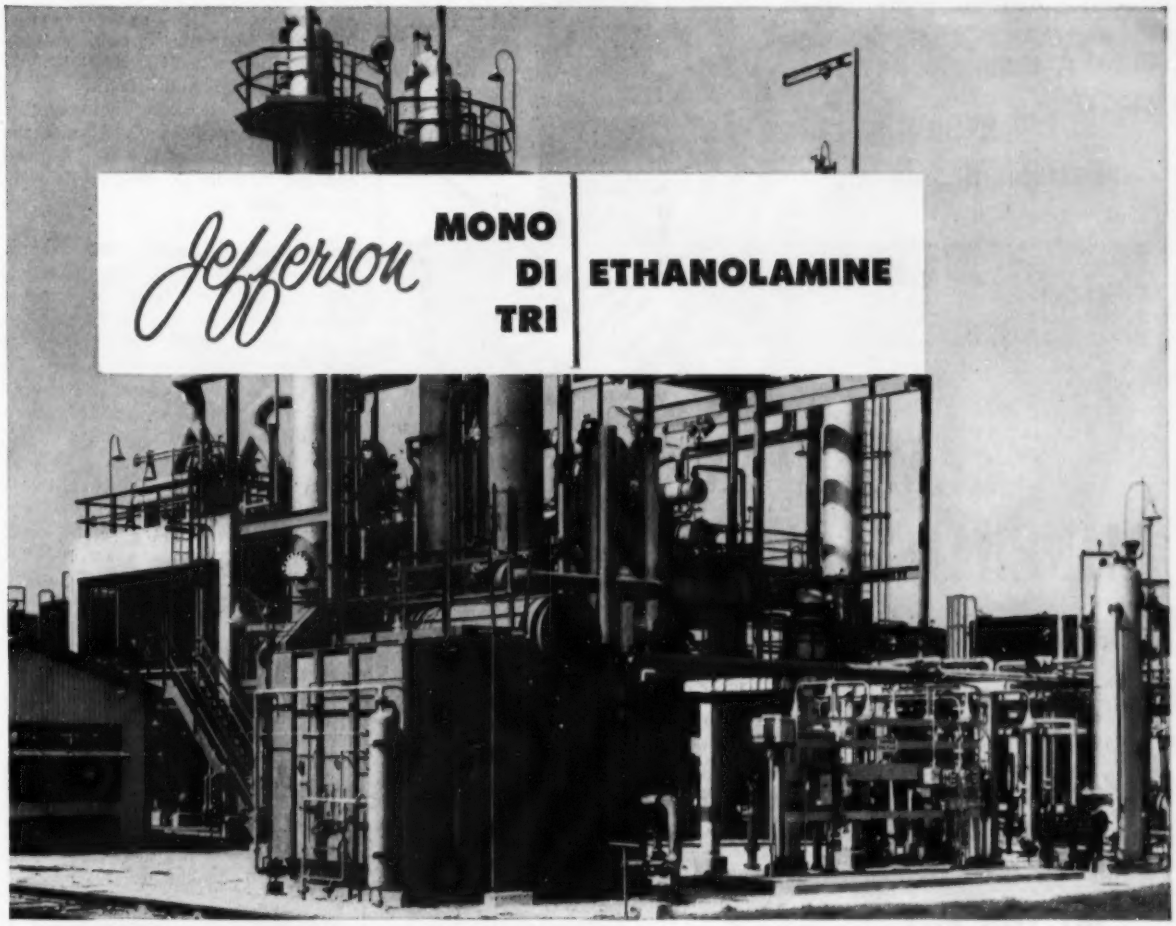

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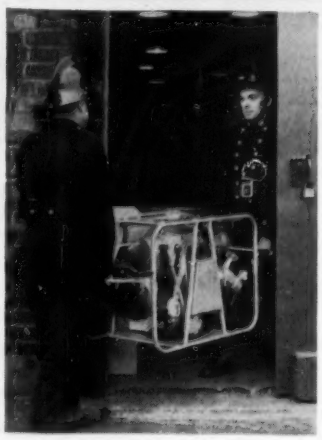
—a product of the Dr. A. G. Epprecht Chemical Institute (Zurich, Switzerland). Changes in viscosity are indicated quickly and directly by a pointer attached to the motor casing. A gear box is incorporated into the instrument, provides it with a 3-speed changeover from 20 rpm. to 64 rpm. to 200 rpm.

•

Unencumbered Rectification: American Rectifier Corp. (New York) is bringing out two types of variable voltage rectifiers with a single-knob speed control. Both the single-phase and three-phase input models will be used to convert standard DC motors into variable speed motors from zero rpm. to above rated speed.

•

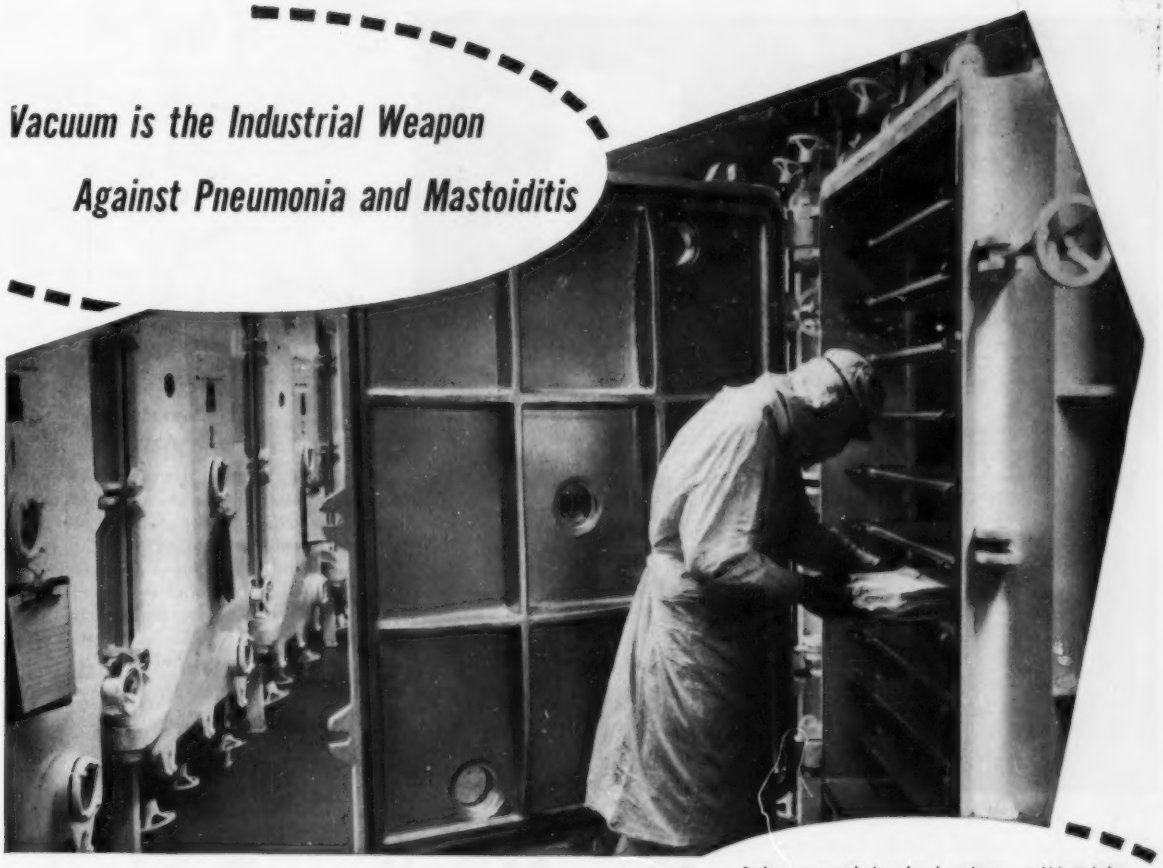
Costly Glance: American Society of Tool Engineers (Detroit) has decided to take a long, $100,000 look at industry's production methods in order to help industry "in its effort to maintain and advance the standard of living". The sum was voted at the Society's 22nd annual meeting recently held in Philadelphia, will be used by ASTE Research Fund Committee to study production methods.



Portable Power

FIREMEN of the Rover Co. (Coventry, England) demonstrate handiness of the firm's new industrial gas turbine as a pumping unit. The 200-lb. engine operates at a constant 46,000 compressor turbine rpm., uses no water and little lubricating oil, will run on paraffin, sewage gas, natural gas, blast furnace gas or coal gas in addition to natural gasoline. Rover is also the originator of one of the world's first gas-turbine automobiles.

Vacuum is the Industrial Weapon Against Pneumonia and Mastoiditis



Stokes vacuum drying chambers in use at Abbott Laboratories, North Chicago, Ill., for the drying of crystalline penicillin and other antibiotics. Picture is taken through window of sterile drying room. Operator is masked and gloved to maintain sterile conditions.

Remember when these were dreaded afflictions? Now mastoid troubles are a rarity and pneumonia is no longer a dreaded killer, thanks to penicillin. Penicillin, dried in Stokes vacuum chambers at Abbott Laboratories, North Chicago, Ill., is one of many pharmaceuticals which must be dried under vacuum because only under vacuum are the destructive effects of air and heat avoided.

Vacuum drying — in many cases from the frozen state — is also the drying method for blood plasma, mycins, hormones, antibiotics, anti-venoms and biologicals.

For many industrial chemicals, vacuum drying is the efficient, low-cost high production method for removing water and recovering valuable solvents safely.

Stokes experts have 50 years of experience in vacuum processing to share with interested manufacturers. Send for any or all of the following informative brochures:

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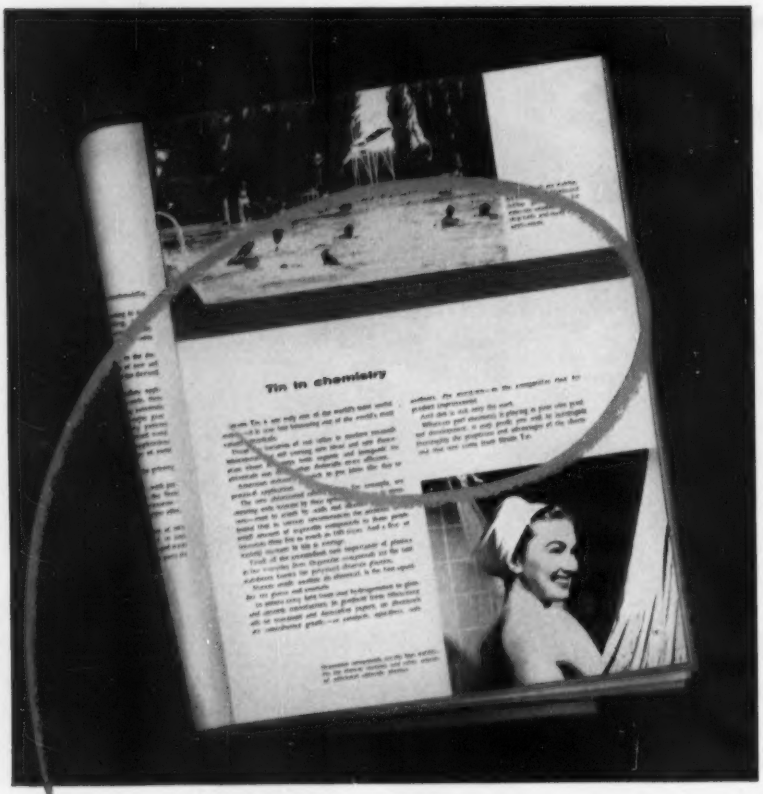

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Stannic oxide, another tin chemical, is the best opacifier for many glazes and enamels.

By the addition of organotin compounds, the new chlorinated rubber paints have 5 to 10 times longer life under average conditions.

And experiments now being made indicate that organotin compounds, combined with other chemicals, may be an effective preservative for jute bags, and for shrimp nets as well.

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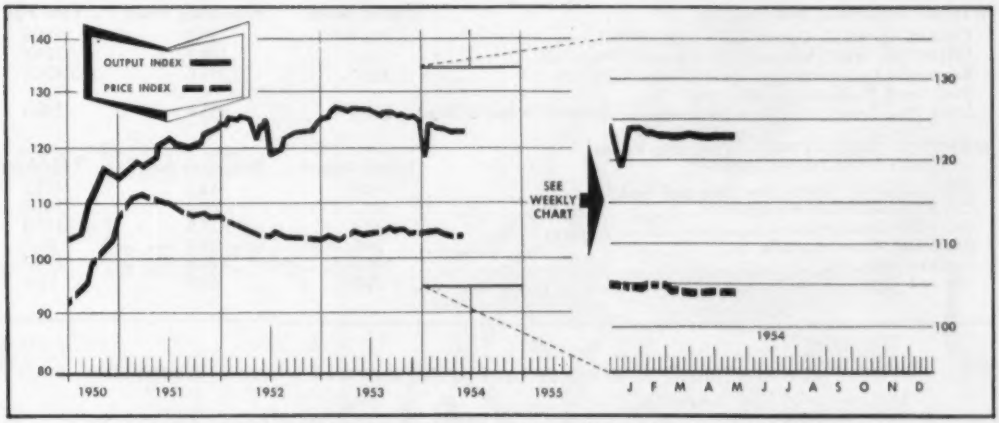

CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

It doesn't take much to set a price-cutting ball in motion, although stopping its headlong roll often poses a problem. But plasticizer makers, for the most part, are doing a fairly good job restraining the urge to trim, which had this market in an uproar just a few weeks ago (CW Market Letter, April 17).

Dioctyl phthalate (DOP) and diisooctyl phthalate (DIOP) for instance, are now described as a "lot steadier" than they were then, with major makers holding firm to the recently reduced (to 32¢/lb.) list prices.

There are persistent reports of some scattered sales being made at lower than official schedules, but these "off to the side" deals would take place, insist trade observers, even if plasticizers were selling at a nickel a pound.

•

Mercury prices are still on a fast-climbing escalator. With only small quantities of the scrambled-for material available, prices have hit as high as $280/flask (76 lbs.). That's about $15 more than sellers were asking just a couple of weeks ago.

Overseas sources of supply, particularly Italy and Spain, aren't expected to contribute much toward easing the tight market here—at least not for several weeks. One vague hope of strapped consumers: the U.S. government may soon let up a little in its wholesale gobbling of European material.

A less nebulous possibility, though, is that some domestic marginal mercury miners—lured by the current cloud-kissing quotes—will get back into the business in a hurry.

•

Pulling against held-down production, at the moment, are increasing caustic soda inquiries. Slackening chlorine demand, has been the controlling factor, of course, in chlorine-caustic production for several weeks. But now, despite a somewhat better movement to sewage treatment outlets, there's still too much chlorine around to boost caustic output to any great extent.

Export demand for solid caustic, too, is reportedly very brisk, but

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.4	123.3	126.6
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.2	104.3	104.4
Bituminous Coal Production (daily average, 1,000 tons)	1,135.0	1,183.0	1,458.0
Steel Ingot Production (1,000 tons)			
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	307.8	303.9	248.4

MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	114.6	114.2	113.2
Chemicals and Allied Products	107.2	107.4	105.5
Industrial Chemicals	117.4	117.9	117.0
Drugs and Pharmaceuticals	94.0	93.9	93.0
Fertilizer Materials	114.1	114.0	113.2
Oils and Fats	59.9	60.5	55.9

sellers here are reluctant to shave firm prices down to where overseas customers will buy heavily.

Chances are that as long as chlorine production-demand cutbacks are in effect, caustic tags will remain pegged.

•

On the other hand, there's nothing static about synthetic detergents. These soap-buckers continue to edge ahead in tonnage sales. Latest figures compiled by the Assn. of American Soap & Glycerine Producers indicate that they now corner about 58% of the total soap and detergent market.

Some 567 million lbs. were sold in the first three months of 1954—an increase of 29% over the previous quarter and 17% more than was sold during the same period last year.

Total soap sales moved ahead slightly (about 5%) from the last quarter '53 mark, hit 405 million lbs. during this year's first quarter. Compared with the same three months of 1953, though, soap actually slipped back about 5%.

•

In another part of the world, Communist purchasing agents are trying to ease back into some markets. They're now in Hongkong, shopping around for a multitude of industrial chemicals and metals for mainland China. International marketers believe that the forays are tied in with attempts to restore trade relations with the polyglot city.

So far very few deals have been put through, and most Hongkong exporters don't expect any big turnovers in the immediate future. Reason: the potential Communist customers lack foreign exchange.

•

The dearth of nearby available sodium sulfate (salt cake) will, by this week, have more customers paying higher prices. The indication here last week that Reichhold Chemicals' $3/ton hike, effective June 1, would possibly cause other producers to follow suit, is being confirmed: still another maker is increasing his salt cake prices to $22/ton from a previous $19 (bulk, 100% basis).

The firming trend will also affect glauber's salt. Crystals will move a like $3/ton to $43 (c.l., bags); anhydrous to $47/ton.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 31, 1954

	Change	New Price		Change	New Price
UP					
Crude glycerine, saponification, 88pcs, tanks, dlvd.	$ .01	$ .23	Crude glycerine, soap lye, 80pcs, tanks, dlvd.	$ .01	$ .21
DOWN					
Anhydrous lanolin, USP, drms, wks.	.03	.30			

All prices per pound unless quantity is stated.

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St. Louis	Plateau 2-2572
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Newark	Mitchell 2-0960
†Buffalo	Delaware 3600

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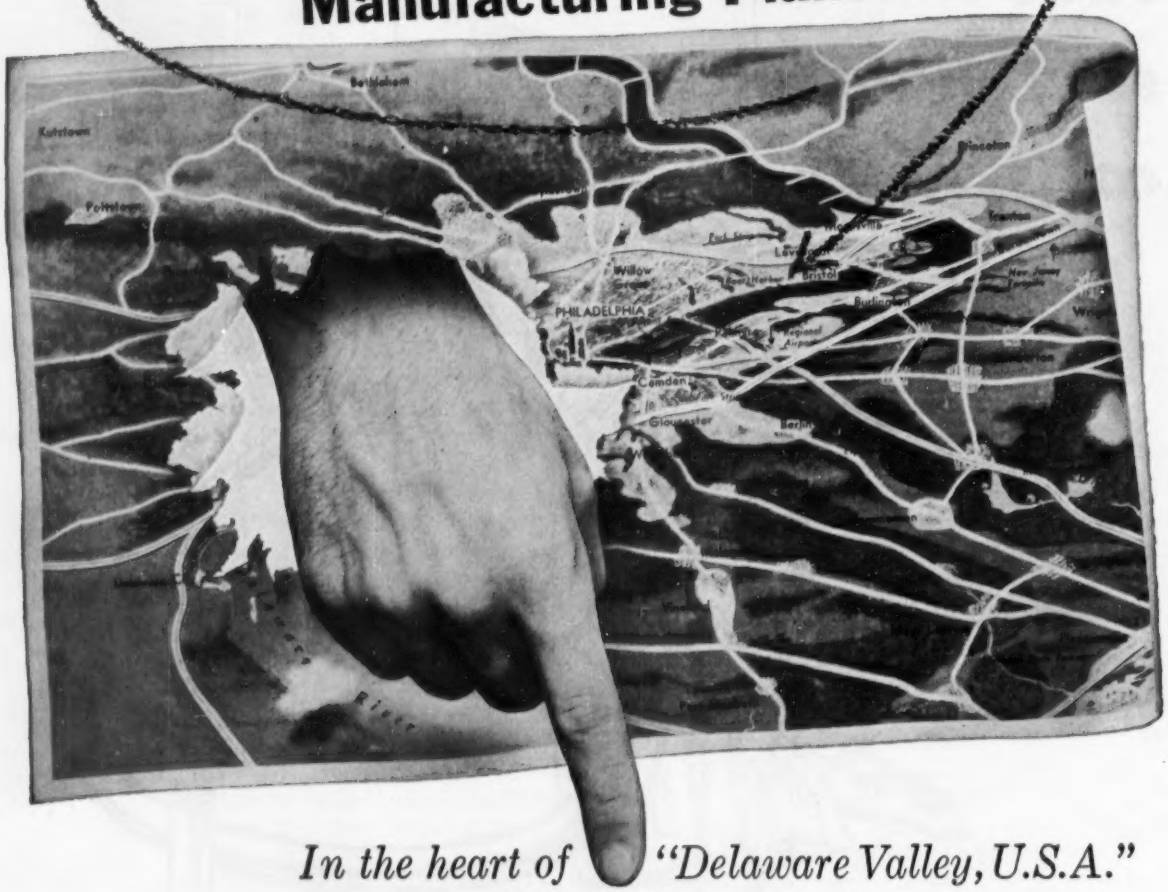
Productions from Cornwell's Manufacturing Plant



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Ketones Pull A Switch

Acetone makers, plagued by current declines in cellulose acetate rayon output, lacquer sales, exports, face still another headache—keener competition from more acetone via newer phenol-from-cumene route.

But welcome relief for other ketone producers may lie in new solvent and other outlets, such as intermediates.

What makes ketones commercially important? A long-time pat answer: their solvent action. But marketers, ever-shopping around for new outlets, are at the moment casting a collective eye on an imposing list of products that consume ketones, not as solvents, but as raw materials.

And acetone—Goliath of the ketone clan—falls right into that dual classification. In fact, some observers maintain that acetone is already leaning more decidedly toward the latter role, estimate that some 60-65% of last year's 523-million-lbs. production wound up as building-block material.

Acetone's over-all output-sales pattern clearly indicates that a substantial amount winds up in captive uses. Here are some official figures for the past few years:

	Production (million lbs.)	Sales
1949	413.0	193.1
1950	482.5	195.1
1951	559.7	236.3
1952	439.6	216.7
1953	522.6	n.a.

For instance, Carbide and Carbon, and Shell Chemical use acetone for production of the high-boiling solvent, diacetone alcohol, and its derivatives: hexylene glycol and the low-priced medium-boiling solvent ketones, methyl isobutyl ketone (MIBK) and mesityl oxide. Demand for these two acetone-based ketones fluctuates with the fortunes of the solvent-consuming surface-coating business.

Two other firms, Du Pont and Rohm & Haas, divert about 6% of the annual acetone production stream into their methacrylates. They need the acetone for the precursor, acetone cyanhydrin.

On the other hand, one market for acetone as a raw material that has contracted greatly since 1951 is production of acetic anhydride by the ketene route. Carbide and Carbon, however, still uses this process.

Moreover, growing foreign self-sufficiency in acetone output continues to topple U.S. exports: last year some 9.2 million lbs. were shipped out. Compare that with 1951's peak 34.3 million and the next year's 23.4 million.

Worries—Present, Future: Although the outlook for increased acetone-based derivatives is good, troubles have stalked acetone vendors—recent declines in lacquer sales, a slump in acetate rayon production, and declining exports. On top of these worries, when additional plants come onstream with phenol by the cumene hydroperoxide process, they'll also have, as a by-product, approximately 0.6 lb. acetone per pound of phenol.

If U.S. industrial lacquer sales—mostly to automobile and furniture manufacturers—fall to an estimated $135 million this year (off about 5% from last year), acetone makers won't fret too much: lacquer sales will still top the $122.3 million of 1952.

Cellulose ester lacquers drink up as a solvent somewhere between 5-10% of the acetone output. But additional acetone enters lacquers by a more circuitous route, as raw material for other ketone solvents.

Another 5-8% of solvent acetone filters into acetate rayon and film spinning baths. A slump in acetate rayon production invariably cuts into the acetone market. That's happening now.

First-quarter acetate rayon figures projected to an annual rate augur that total poundage (yarn, staple, and tow) may drop severely in 1954—down to 200 million lbs., compared with 320 million lbs. last year and 330 million lbs. in 1952. Acetone sellers look back at better days when comparing these latest totals with the 444 million lbs. of acetate rayon produced in 1950.

Spreading Pattern: Heading the list of other main uses for acetone are these:

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Low-boiling solvent ketones like acetone and methyl ethyl ketone (MEK) enable lacquer formulators to build up a surface coating with plenty of solids. The medium-boiling solvent ketones like MIBK and mesityl oxide help slow down the evaporation of surface-coating solvents, promote good flowing properties.

One ketone expert estimates that about two-thirds of MEK production (estimated at a current rate of 200 million lbs./year) makes its way as a solvent into nitrocellulose, vinyl, cellulose acetate butyrate, and acrylic surface coatings. MEK is also used to dissolve synthetic and natural resins for cellulose nitrate lacquers.

Balance of MEK output has these solvent applications: paint, lacquer, and varnish removers; synthetic rubber adhesives, industrial cleaning compounds. Add, too, growing use of MEK in dewaxing lubricating oils.

Vinyl resin users find MEK and MIBK appropriate solvents for making balanced, low-viscosity, high-solids solutions. Nitrocellulose lacquer formulators also use MIBK, the major medium-boiling ketone, to give their lacquers low viscosity.

Other lacquer men, dipping into the MIBK pot, blend nitrocellulose with acrylic esters, polyamide resins or phenolic resins for hard, durable surface coatings.

All of these uses have pushed MIBK production to an estimated 120 million lbs./year. And sellers envision a widening application as a dispersant in the expanding organosol technique of applying vinyl coatings or the preparation of unsupported films.

A good 90% of the other principal medium-boiler, mesityl oxide, is consumed in the preparation of nitrocellulose and vinyl lacquers and thinners. Mesityl oxide doubles as a ketone and an olefin, yields derivatives based on reactions characteristic of either.

Most lacquer appliers add a small percentage of a high-boiling solvent ketone to prolong the drying period of their finishes. Reason: to leave a glossy finish, increase blush resistance, or to keep droplets of sprayed coatings in solution (prevent "dry overspray"). Diacetone alcohol, diisobutyl ketone, isophorone, and cyclohexanone satisfy these requirements.

Some brake fluid manufacturers also use diacetone alcohol as a component of their cheaper products, but its usage is small compared with that of the glycol ethers. Diisobutyl ketone (DIBK) is a dispersant for organosol-type resins.

Carbide's isophorone is an exceptionally powerful solvent for vinyl chloride-acetate resins. Almost all formulations of roll-coated vinyl metal finishes include it. Right now DuPont's cyclohexanone is rated a chief competitor.

Makers of ketones used as chemical intermediates cite the complexities of this class of organics, point out that many of the ketones go into one or more of such fields as dyes, drugs, rubber accelerators, insecticides, perfumes, flavorings.

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Acetone	$ .08
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MIBK	.13
Diisobutyl ketone	.135
Isophorone	.225
Cyclohexanone	.32
Acetophenone	.75
Benzophenone	1.40
Methylionone (standard)	3.80
β-ionone	4.30

Acetophenone, heretofore one of the most versatile of ketone intermediates, is being pushed as a solvent. Current production, about 2 million lbs./year, will climb since it's a by-product with phenol from the cumene process.

Other well known and more expensive (*see table*) ketone intermediates like benzophenone, the ionones and their homologs seek specialty markets. For example, synthetic vitamin A and derivatives are turned out from pure β-ionone, and the perfuming of soaps and detergents take up about two-thirds of the other ionones.

All in all, ketone producers may well have hit on one happy solution to up sales: when older markets become surfeited, scout around for newer outlets that will buy upgraded versions of your products.

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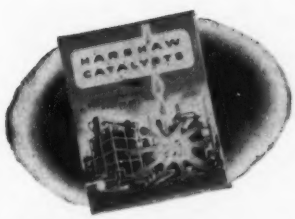

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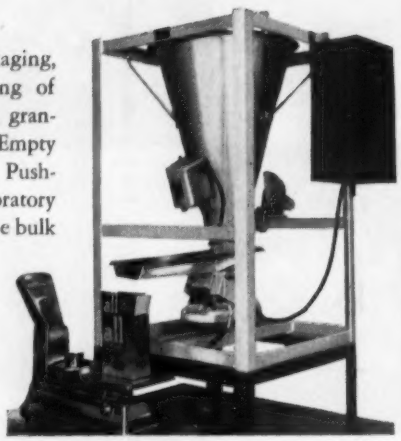

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Pesticides Outlook

What's ahead for pesticides? Manufacturers, formulators and consumers will study one prognosticator this week to find out. But they'll find that USDA Commodity Stabilization Service's Pesticide Situation for 1953-1954, just released, does little more than give official confirmation to a number of industry observations:

- The over-all supply of bug and weed killers for domestic use in the 1954 season is fairly large; there's ample production capacity for all anticipated needs of major items;
- Some procrastinating consumers face the possibility of serious delivery delays—but the danger is hedged with an "if."
- Producers, vividly recalling the far-from-happy experience with oversupplies in 1952, and the somewhat discouraging '53 season, have braked output for 1954. But despite some makers' cautious approach, few believe production will actually lag behind the expected-to-increase consumption rate. And requirements for the new crop year,* opines CSS crystal-ballers, are in for a hefty rise over last year's (at producers' level) dismal domestic disappearance.

For instance, DDT needs may well hit 60-80 million lbs. during the '53-'54 year, substantially more than '52-'53's 52.7 million lbs. Another indication of DDT's poor showing until lately: production for the calendar year 1953, in the neighborhood of 84 million lbs., was down some 16% from the previous year's output.

More recently, though, DDT production has been on the upswing. Some 32.4 million lbs. were turned out in the five-month period ending in February of this year—topping, by a coincidental 16%, the quantity made in the comparable months of '52-'53. The increase reflects stepped-up overseas shipments via General Services Administration orders (*CW Market Letter, May 22*).

Fungicide Move: Copper sulfate and ground sulfur continue as the country's two top-spot fungicides. With no attempt made to slice out specific pesticide requirements of either, the government agency tabs this year's total consumption at between 100 and 125 million lbs. of the sulfate, some 300-400 million lbs. of sulfur.

Last year, however, a little more than half the domestic shipments (about 39.7 million lbs.) of copper

* Crop year is from Oct. 1 to Sept. 30 of the following year.

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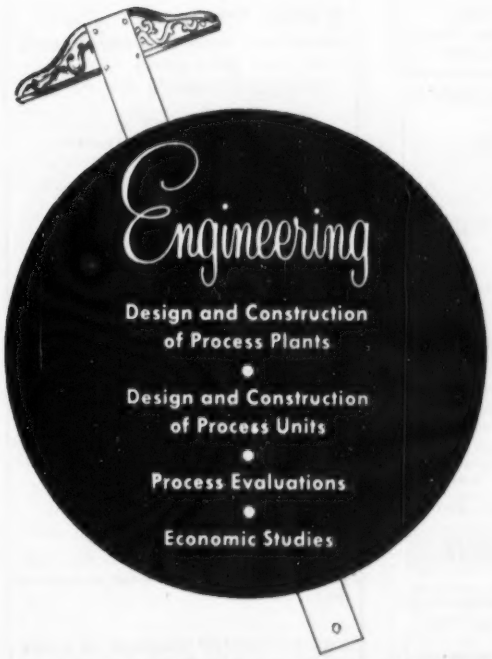

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sulfate were headed for agricultural outlets, and some 36 million went into industrial uses. (A big siphoner, exports, took about 68.6 million lbs.) Agricultural sales so far this year are running well ahead of shipments made in the same 1953 period.

No reports of the quantities of sulfur being ground have been made to the government since controls were lifted in 1853, but indications are that ag requirements for the upcoming crop year will be about the same —or perhaps slightly higher—than those of a year ago.

In one application—to cotton—(either by itself or in mixture) sulfur appears to have been in a skid that could end this year. Note this comparison: in 1950, consumption was at a 110-million-lbs. level; by last year disappearance scarcely hit 70 million.

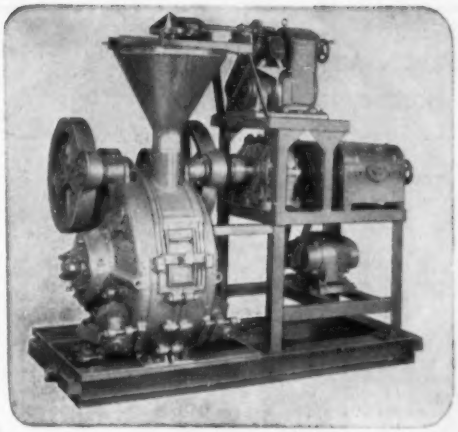
Synthetic organic fungicides, of course, have in recent years, elbowed into some copper and sulfur areas. And adding to the scramble for markets was the drought over wide areas during the last couple of years, which cut into the need for fungicides.

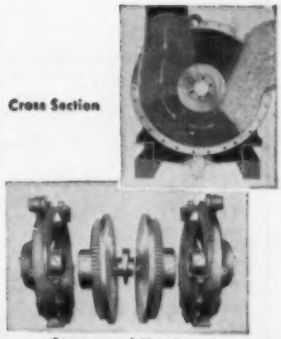
Unpredictable weather conditions have a direct bearing on both insect, infestations and fungus infections (*see CW, April 10, p. 76*). A flick of the weather wheel could result in hurry-up needs for large tonnages of pesticidal formulations to forestall heavy crop losses.

Take the cotton belt, for instance. Should June and July come up with a favorable rainfall, boll weevil populations might increase quickly to epidemic proportions, skyrocket pesticide demand. Thus growers could face temporarily exhausted supply sources, especially where formulators have bought only enough stocks to meet current needs.

How Much Gamma? Adverse weather conditions alone do not affect pesticide suply/demand conditions. In many cases, fear of overproduction has cut output despite anticipated requirements. This year's benzene hexachloride need (gamma-isomer basis and including lindane) is expected to top last year's 7 million lbs., probably approach the 1951-'52 crop year peak of some 11 million lbs.

But indicative of makers' holding back is this comparison of production: in a recent five-month period (Oct. 1, '53 through Feb. 28, '54), BHC output (gamma basis, excluding lindane), is reported at about 2.7 million lbs. That's 33% less than in the corresponding five months of the previous year. (Pinpoint data is not available for lindane, but during the '52-'53 season, production probably did not reach 1.5 million, was possibly





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Copies of the Prospectus may be obtained from any of the several underwriters, including the undersigned, only in States in which such underwriters are qualified to act as dealers in securities and in which the Prospectus may be legally distributed.

A. C. Allyn and Company
INCORPORATED

First Southwest Company

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MARKETS . . . . . .

as low as 1 million lbs.)

Thumbnail Rundowns: The current CSS report brings up to date many of the statistics presented last year. Here, in capsule form, are the latest data on some of the other pesticides surveyed.

- Aldrin, dieldrin and heptachlor appear to be in good supply—no threat of shortages looms in the current year. There are no production figures available for endrin, but output is up for 1954; a considerable quantity will be used on tobacco crops.
- Toxaphene outlook is good. Consumption may well exceed last year's 30 million lbs.
- Allethrin (a synthetic pyrethrin-like compound) production facilities are ample to meet any conceivable demand. Last year's output: some 50,000-60,000 lbs.
- Lead arsenate consumption, on a steep downgrade over the past few years, may be heading for a level. The figures:

Crop year	Use (millions of lbs.)
1949-50	27.5
1950-51	30.2
1951-52	17.5
1952-53	16.0
1953-54 (est. minimum)	16.0

Reason for the expectation that lead arsenate consumption will remain fairly uniform, at least for the next few years: one advantage at least, over DDT. Many fruit growers will continue to prefer lead for codling moth control because DDT depletes populations of beneficial insects, and other fruit pests often become abnormally numerous.

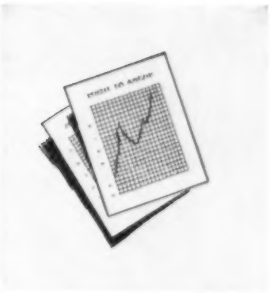
- Nicotine is a pesticide that has already found its table. For the last five seasons use has remained rather steady at nearly 500,000 lbs. (100% basis). Adequate supplies will be available for all customers in 1954.

No Drop Through Shifts: The diversion of acreage in 1954 to crops other than cotton, wheat, and corn is likely to have some affect on local-area pesticides consumption, although acreage shifts do not have as great an influence on infestations as does weather.

But the changes could nudge use a little higher. Here's why: some crops planted on diverted acres will themselves require application of chemicals. Some growers, too, will use more pesticides per acre on the reduced acreage allotment in an attempt to increase rate of production. Thus, the effect of reductions in acreage on pesticide consumption will be offset to an appreciable extent.

Product Information

1 special data available, giving physical and chemical properties of many B&A Fine Chemicals, uses, etc.



Handling and Storage

2 information on proper methods of handling and storing B&A Fine Chemicals in your plant or laboratory.

Technical Service

3 advice and counsel on production problems involved in using such chemicals.

Special Chemicals

4 developed to meet your particular needs in pilot plant or process quantities.

If You Use Fine Chemicals Make B&A Part of Your Working Team

It's teamwork that produces outstanding results and makes everyone's job easier. You get the advantages of real teamwork when you use Baker & Adamson Fine Chemicals for production or research. Long experience has given B&A a wealth of knowledge on the properties, use and handling of the many B&A Fine Chemicals in countless applications. This knowledge may prove all-important in helping you solve particularly knotty technical problems!

Here's how we help: A member of our sales or technical service staff provides you with product information . . . endeavors to help you determine the best way to get top results with a particular B&A Fine Chemical. Or he may suggest a special chemical best suited to your particular purposes. He'll gladly consult with you on other matters, too, such as efficient methods of product handling and storage, safety precautions, etc.

This teamwork—some of the services are outlined at the left—is available to you at all times . . . just phone or write your nearest B&A office.

= *Real Help When You Need It!*

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